

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

SAMSON MANUFACTURING
CORPORATION and SCOTT W. SAMSON,

Plaintiffs,

Civil Action No. 3:09-CV-30027-MAP

v.

AUSTIN PRECISION PRODUCTS, INC. d/b/a
LARUE TACTICAL, COMMAND ARMS
ACCESSORIES, LLC, and TDI ARMS LTD.,

Defendants.

DEFENDANT, AUSTIN PRECISION PRODUCTS, INC.,

INITIAL NON-INFRINGEMENT AND INVALIDITY CONTENTIONS

Defendant Austin Precision Products, Inc. d/b/a LaRue Tactical ("LaRue Tactical"), pursuant to the Court's Case Management Order, provides the following initial non-infringement and invalidity contentions regarding Plaintiffs' U.S. Patent No. 7,367,152. A non-infringement claim chart and patent invalidity claim chart are attached along with drawings supporting such claim charts.

These charts and supporting drawings rebut Plaintiffs' assertions of infringement of claims 1-5 and 7-8 of U.S. Patent No. 7,367,152 by the accused products LaRue Tactical QD Pivot Mount LT 649-30 ("LaRue 649 Mount") and the EOtech 3X Magnifier Mount LT670-EO ("LaRue EOtech Mount"). These charts and supporting drawings also provide evidence of the invalidity of claims 1-5 and 7-8 of U.S. Patent No. 7,367,152. LaRue Tactical reserves its right to supplement its disclosures, through discovery from Plaintiffs and otherwise, to include

additional evidence of non-infringement of any LaRue Tactical products and additional evidence to support the invalidity of any and all claims of U.S. Patent No. 7,367,152.

The following Table 1 – Table 14 and supporting drawings in Exhibit A – Exhibit B provide evidence in support of non-infringement of U.S. Patent No. 7,367,152 by the identified products of LaRue Tactical, and in support of the invalidity of claims 1-5 and 7-8 of U.S. Patent No. 7,367,152.

Respectfully submitted,

/s/ Adam Pugh

ADAM PUGH

Texas Bar No. 2404431

Slater, Kennon & Jameson, LLP

4807 Spicewood Springs Road

Building 2, Suite 240

Austin, Texas 78759

512.472.2431 (Phone)

512.472.0432 (Facsimile)

Counsel for Defendant

Austin Precision Products, Inc.

d/b/a LaRue Tactical

CERTIFICATE OF SERVICE

I hereby certify that on this 9TH day of October, 2009, I caused a true and correct copy of the foregoing to be electronically served via CM/ECF upon the following:

Laura Carroll
Burns & Levinson LLP
125 Summer St.
Boston, MA 02110
*Attorney for Plaintiffs,
Samson Manufacturing Corporation and
Scott W. Samson*

/s/ Adam Pugh

Adam Pugh

TABLE OF CONTENTS

	<u>Description</u>	<u>Page</u>
1.	Claim 1 Noninfringement Table 1	4
2.	Claim 2 Noninfringement Table 2	7
3.	Claim 3 Noninfringement Table 3	8
4.	Claim 4 Noninfringement Table 4	9
5.	Claim 5 Noninfringement Table 5	9
6.	Claim 7 Noninfringement Table 6	10
7.	Claim 8 Noninfringement Table 7	10
8.	Exhibit A: U.S. Patent No. 7,367,152, FIG. 1 – FIG. 3	11
9.	Exhibit B: LaRue 649 Mount, FIG. 1 – FIG. 5	16
10.	Claim 1 Invalidity Table 8	22
11.	Claim 2 Invalidity Table 9	25
12.	Claim 3 Invalidity Table 10	26
13.	Claim 4 Invalidity Table 11	27
14.	Claim 5 Invalidity Table 12	27
15.	Claim 7 Invalidity Table 13	28
16.	Claim 8 Invalidity Table 14	28
17.	Exhibit C: U.S. Patent No. 2,803,880	29
18.	Exhibit D: U.S. Patent No. 3,874,029	34
19.	Exhibit E: U.S. Patent No. 2,571,935	42

TABLE 1

1. CLAIM 1 LIMITATIONS OF U.S. PATENT NO. 7,367,152, ALLEGED INFRINGEMENT CONTENTIONS OF QD PIVOT MOUNT LT649-30, AND BASIS FOR NONINFRINGEMENT CONTENTIONS

Claim 1 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	LT649-30 Mount: Accused Component (see FIG. 1-FIG. 5 in EXHIBIT B)	Basis for Noninfringement Contentions
A pivoting accessory mount (10) for use with a firearm (24), comprising: a base member (12) having a front edge, a rear edge, a longitudinal axis extending between said front edge and said rear edge, a bottom surface (14) and a top surface (15), said bottom surface (14) configured to be mounted on an upper receiver (28) of said firearm (24) wherein said longitudinal axis of said mounting base (12) is in substantial alignment with barrel (34) of said firearm (24), said top surface (15) having supporting structure (16) extending upwardly therefrom;	A pivot mount (500) for use with a firearm (524), comprising: a base (512) having a front edge, a rear edge, a longitudinal axis extending between the front edge and the rear edge, a bottom surface (514) and a top surface (515), the bottom surface (514) configured to be mounted on an upper receiver (528) of the firearm (524) wherein the longitudinal axis of the mounting base (512) is in substantial alignment, <u>centered above and in parallel alignment</u> with a barrel of the firearm (524), the top surface (515) having <u>an offset</u> supporting structure (516) extending upwardly therefrom <u>and offset to one side of the longitudinal axis of the mounting base (512);</u>	This limitation of claim 1 of the '152 patent is found in numerous prior art references by many sources, including Weaver, Pachmayr, Merritt, and Lipski. See for example, U.S. Patent No. 2,803,880 by Weaver, and U.S. Patent No. 2,571,935 by Pachmayr et al. As noted, there are patentably distinguishing differences between claim 1 of the '152 patent and the accused component.

TABLE 1 (continued)

Claim 1 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	LT649-30 Mount: Accused Component (see FIG. 1-FIG. 5 in EXHIBIT B)	Basis for Noninfringement Contentions
a mounting shaft (46) supported by and extending through said supporting structure (16), said mounting shaft (46) having a central axis that is substantially parallel to said longitudinal axis;	<u>an offset mounting shaft (546) supported by and extending through the offset supporting structure (516), the offset mounting shaft (546) having a central axis that is offset from and substantially parallel to the longitudinal axis;</u>	There is no disclosure in this limitation of the '152 patent of an offset mounting shaft and offset supporting structure, as found in the accused component.
an accessory clamp (18) having an upper (20) and a lower section (22), said upper section (20) including an interface (50) for receiving and retaining a firearm accessory (48), said lower section (22) configured to be received about said mounting shaft (46), wherein said accessory clamp (18) can be pivoted about said mounting shaft (46) between a first, inactive position adjacent the firearm and a second, active position protruding substantially vertically from said firearm (24);	<u>a unitary accessory clamp (518) comprising a single unitary and undivided structure including an interface (550) for receiving and retaining a firearm accessory (548), the unitary accessory clamp (518) being positionally fixed to the offset mounting shaft (546), wherein the unitary accessory clamp (518) and the offset mounting shaft (546) affixed thereto can be rotated about the central axis of the offset mounting shaft (546) between a first, inactive position adjacent the firearm (500, FIG. 3) and a second, active position (500, FIG. 1, 2) protruding substantially vertically from said firearm (524);</u>	The accessory clamp found in this limitation of claim 1 of the '152 patent has separable upper and lower sections, whereas the accessory clamp of the accused component has a single unitary and undivided structure. Furthermore, the accessory clamp found in this limitation of the '152 patent pivots about the mounting shaft, whereas the accessory clamp and the mounting shaft are positionally fixed to one another in the accused component.

TABLE 1 (continued)

Claim 1 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	LT649-30 Mount: Accused Component (see FIG. 1-FIG. 5 in EXHIBIT B)	Basis for Noninfringement Contentions
<p>wherein said mounting shaft (46) is linearly displaceable along said central axis between a latched position and a released position, wherein said mounting shaft (46) in said latched position engages said supporting structure (16) and said accessory clamp (18) thereby preventing said accessory clamp (18) from pivoting relative to said base member (12).</p>	<p><u>wherein the unitary accessory clamp (518) and the offset mounting shaft (546) affixed thereto are longitudinally displaceable along the central axis of the offset mounting shaft (546), enabling the unitary accessory clamp (518) and the offset mounting shaft (546) affixed thereto to be positioned between a latched active position (500, FIG. 1, 2) whereby an accessory device (548) positioned in the unitary accessory clamp (518) is positioned vertically above the firearm (524) and a latched inactive position (500, FIG. 3) whereby an accessory device (548) positioned in the unitary accessory clamp 518 is positioned adjacent to and offset from the firearm (524).</u></p>	<p>The mounting shaft found in this limitation of the '152 patent is linearly displaceable along the central axis between a latched position and a released position. Note that only the one position provides a "latched" position. In contrast to the '152 patent, the accused component provides for the unitary accessory clamp and offset mounting clamp affixed thereto to be longitudinally displaceable and rotatable between a latched active position and a latched inactive position.</p>

TABLE 2

CLAIM 2 LIMITATIONS OF U.S. PATENT NO. 7,367,152, ALLEGED INFRINGEMENT CONTENTIONS OF QD PIVOT MOUNT
LT649-30, AND BASIS FOR NONINFRINGEMENT CONTENTIONS

Claim 2 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	LT649-30 Mount: Accused Component (see FIG. 1-FIG. 5 in EXHIBIT B)	Basis for Noninfringement Contentions
The pivoting accessory mount (10) of claim 1, wherein said mounting shaft (46) is spring (56) biased toward said latched position (54) and selectively depressible toward said released position (54a).	The pivot mount (500) for use with a firearm, as described above, wherein the mounting shaft (546) is spring biased (556) toward the <u><i>latched active position (500, FIG. 1, 2) and the latched inactive position (500, FIG. 3), the position being selected by moving the unitary accessory clamp (518) and the offset mounting shaft (546) affixed thereto in a longitudinal direction against the biased spring and rotating to the desired position.</i></u>	This claim limitation of the '152 patent provides for a spring biased toward a latched position and an unlatched or released position, while the accused component provides for latching in an active and in an inactive position.

TABLE 3

3. CLAIM 3 LIMITATIONS OF U.S. PATENT NO. 7,367,152, ALLEGED INFRINGEMENT CONTENTIONS OF QD PIVOT MOUNT
LT649-30, AND BASIS FOR NONINFRINGEMENT CONTENTIONS

Claim 3 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	LT649-30 Mount: Accused Component (see FIG. 1-FIG. 5 in EXHIBIT B)	Differences Between Claim and Accused Component as a Basis for Noninfringement Contentions
The pivoting accessory mount (10) of claim 1, said supporting structure (16) further comprising:	The pivot mount (500) for use with a firearm, as described above, the supporting structure (516) further comprising:	
a first support element (16) extending upwardly from the front edge of the base member (12) and a second support element (16) extending upwardly from the rear edge of the base member (12), wherein said mounting shaft (46) extends between and is supported by said first and second support elements (16), wherein said lower section (22) of said accessory clamp (18) is received about said mounting shaft (46) and is positioned between said first and second support elements (16).	A first <u>offset</u> support element (516) extending upwardly from the front edge of the base member (512) and a second <u>offset</u> support element (516) extending upwardly from the rear edge of the base member (512), wherein <u>the unitary accessory clamp (518) and the offset mounting shaft (546) affixed thereto</u> extends between and <u>are</u> supported by the first and second support elements (516),	As depicted in the figures, the base member (12) and supporting elements (16) in claim 1 of the '152 patent are centered vertically over the barrel of the firearm, which limits the minimum height of a sighting accessory over the barrel. In the accused component, the supporting elements, pivot point of the unitary accessory clamp and mounting shaft are offset from being centered vertically over the barrel of the firearm, enabling a sighting accessory, such as an iron sight, to be in closer alignment with the barrel of the firearm, providing greater accuracy from the firearm.

TABLE 4

CLAIM 4 LIMITATIONS OF U.S. PATENT NO. 7,367,152, ALLEGED INFRINGEMENT CONTENTIONS OF QD PIVOT MOUNT LT649-30, AND BASIS FOR NONINFRINGEMENT CONTENTIONS

Claim 4 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	LT649-30 Mount: Accused Component (see FIG. 1-FIG. 5 in EXHIBIT B)	Basis for Noninfringement Contentions
The pivoting accessory mount (10) of claim 1, wherein said bottom surface (14) of said base member (12) is a clamping device (40, 42, 44) configured to interface with a Weaver type interface rail.	The pivot mount (500) for use with a firearm, as described above, wherein the bottom surface (514) of the base member (512) is a clamping device (540, 542, 544) configured to interface with a Weaver type interface rail.	This limitation is found in numerous citations and examples in the prior art of accessory mounting devices, and is noted as such in column 4, line 66 – column 5, line 3 of the '152 patent specification.

5.

TABLE 5

CLAIM 5 LIMITATIONS OF U.S. PATENT NO. 7,367,152, ALLEGED INFRINGEMENT CONTENTIONS OF QD PIVOT MOUNT LT649-30, AND BASIS FOR NONINFRINGEMENT CONTENTIONS

Claim 5 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	LT649-30 Mount: Accused Component (see FIG. 1-FIG. 5 in EXHIBIT B)	Basis for Noninfringement Contentions
The pivoting accessory mount (10) of claim 1, wherein said base member (12) includes a clamping means (40, 42, 44) to interface directly with the upper receiver of said firearm (24).	The pivot mount (500) for use with a firearm, as described above, wherein the base member (512) includes a clamping means (540, 542, 544) to interface directly with the upper receiver of the firearm (524).	This limitation is found in numerous citations and examples in the prior art of accessory mounting devices, and is noted as such in column 4, line 36-50 of the '152 patent specification.

TABLE 6

CLAIM 7 LIMITATIONS OF U.S. PATENT NO. 7,367,152, ALLEGED INFRINGEMENT CONTENTIONS OF QD PIVOT MOUNT LT649-30, AND BASIS FOR NONINFRINGEMENT CONTENTIONS

Claim 7 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	LT649-30 Mount: Accused Component (see FIG. 1-FIG. 5 in EXHIBIT B)	Basis for Noninfringement Contentions
The pivoting accessory mount (10) of claim 1,	The pivot mount (500) for use with a firearm, as described above,	
wherein said firearm accessory (48) is a sighting device (47).	Wherein said firearm accessory (548) is a sighting device (547).	This limitation is well known in the prior art and is a typical use of many accessory mounting devices.

TABLE 7

CLAIM 8 LIMITATIONS OF U.S. PATENT NO. 7,367,152, ALLEGED INFRINGEMENT CONTENTIONS OF QD PIVOT MOUNT LT649-30, AND BASIS FOR NONINFRINGEMENT CONTENTIONS

Claim 8 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	LT649-30 Mount: Accused Component (see FIG. 1-FIG. 5 in EXHIBIT B)	Basis for Noninfringement Contentions
The pivoting accessory mount (10) of claim 1,	The pivot mount (500) for use with a firearm, as described above,	
wherein said firearm accessory (48) is a secondary sighting device (48) configured for use in conjunction with a primary sighting device (47) also mounted on said firearm (24).	wherein the firearm accessory (548) is a secondary sighting device (548) configured for use in conjunction with a primary sighting device (547) also mounted on said firearm (524).	This limitation is well known in the prior art and is a typical use of many accessory mounting devices for providing many optional capabilities to a firearm user.

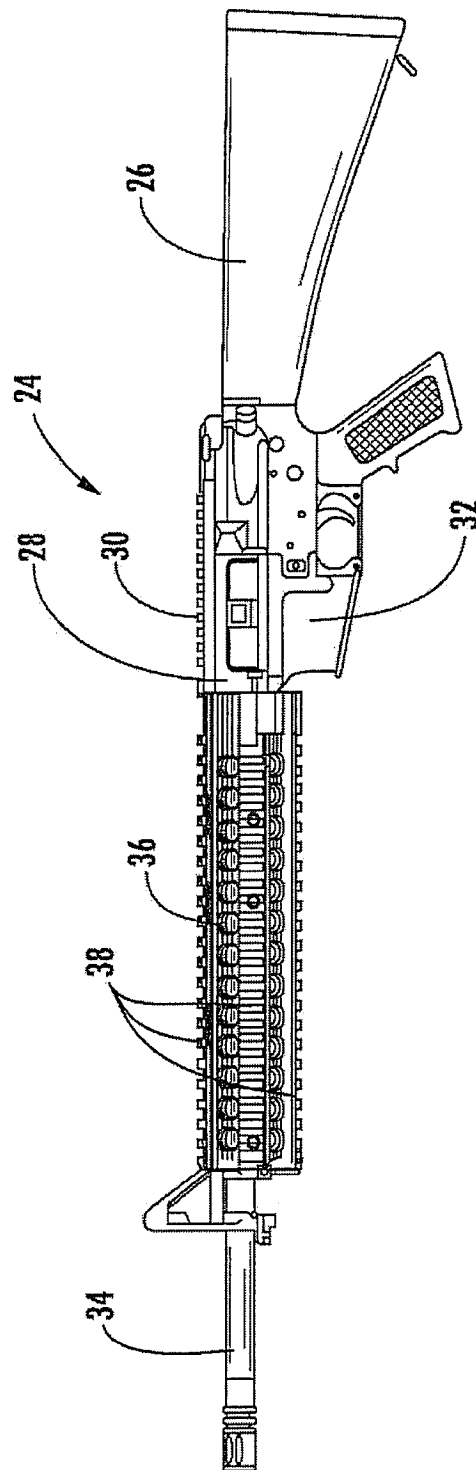
8. EXHIBIT A

U.S. Patent

May 6, 2008

Sheet 1 of 6

US 7,367,152 B2



U.S. Patent

May 6, 2008

Sheet 2 of 6

US 7,367,152 B2

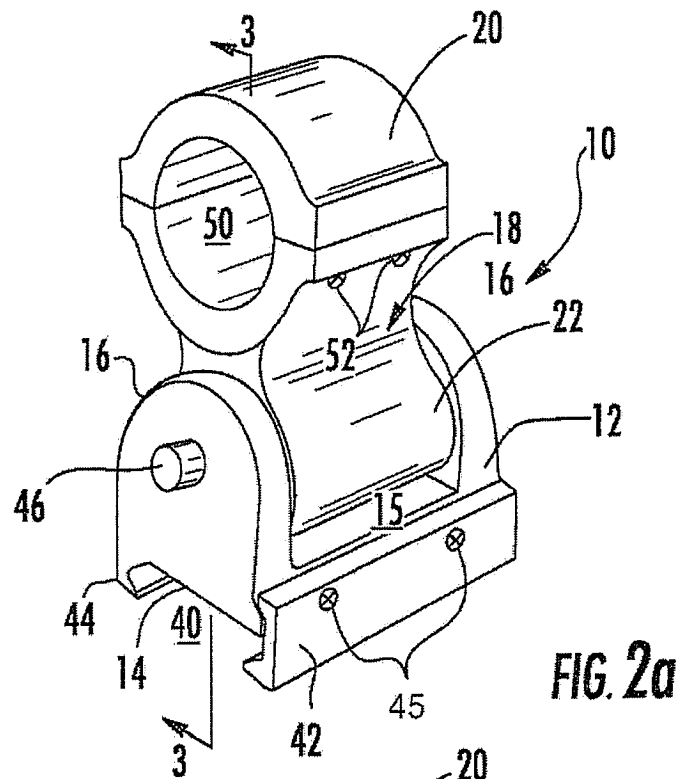


FIG. 2a

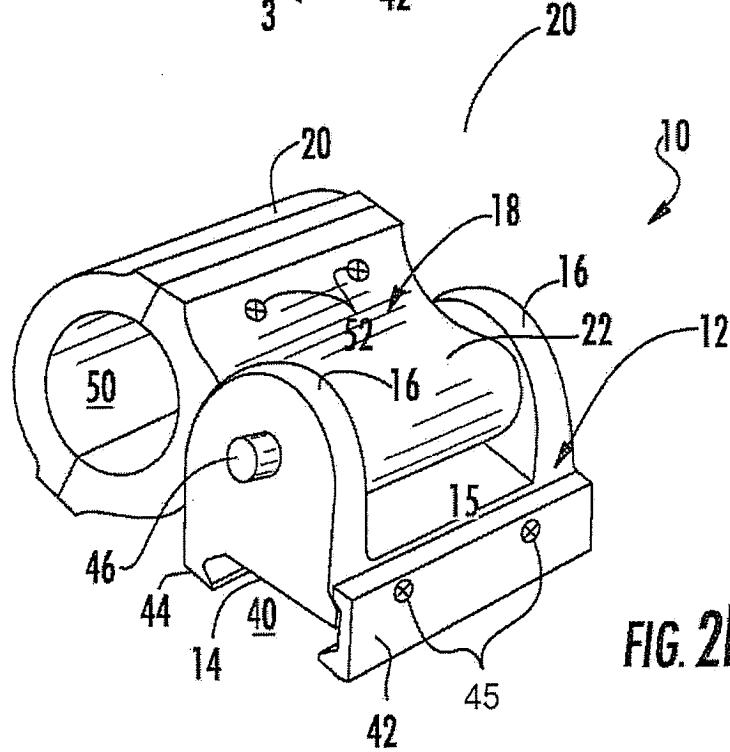


FIG. 2b

U.S. Patent

May 6, 2008

Sheet 3 of 6

US 7,367,152 B2

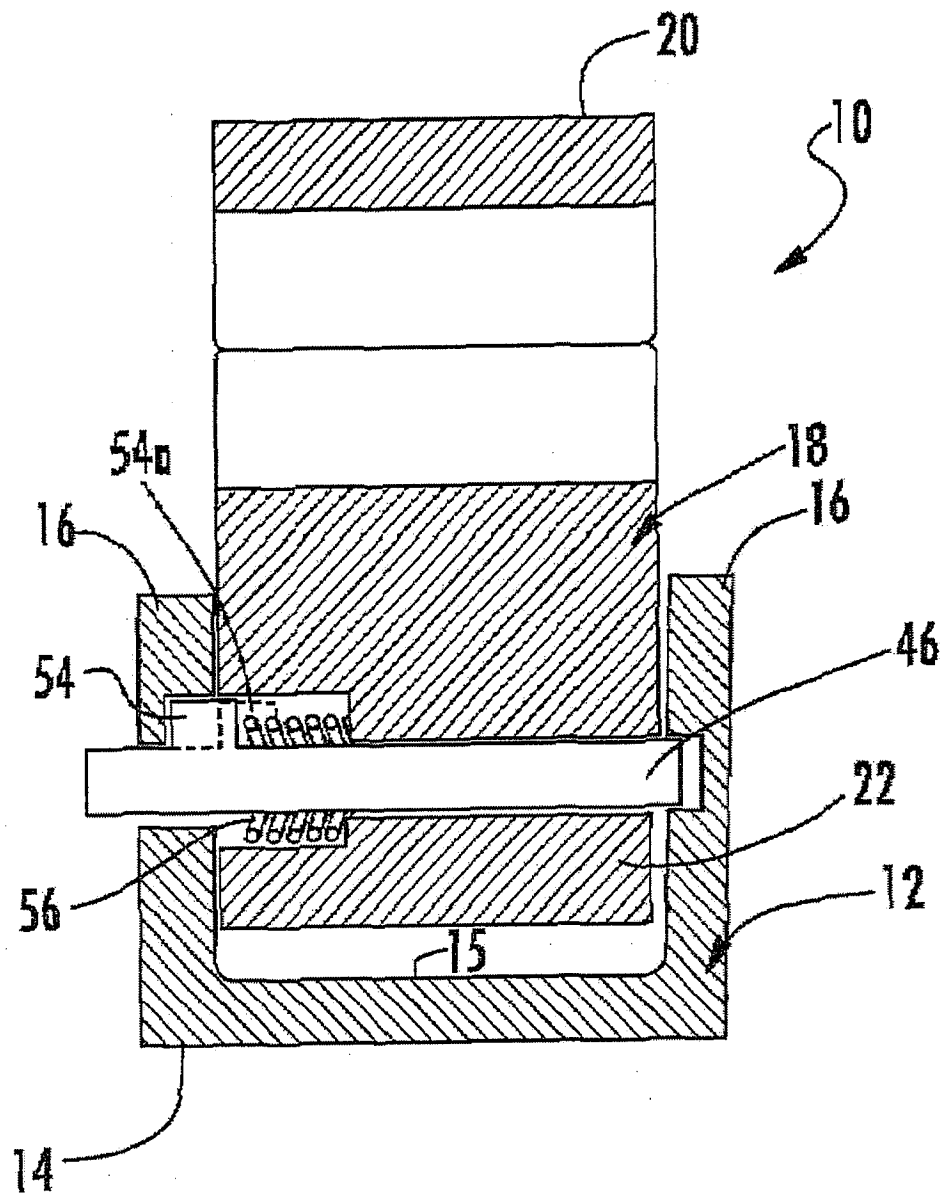


FIG. 3

U.S. Patent

May 6, 2008

Sheet 4 of 6

US 7,367,152 B2

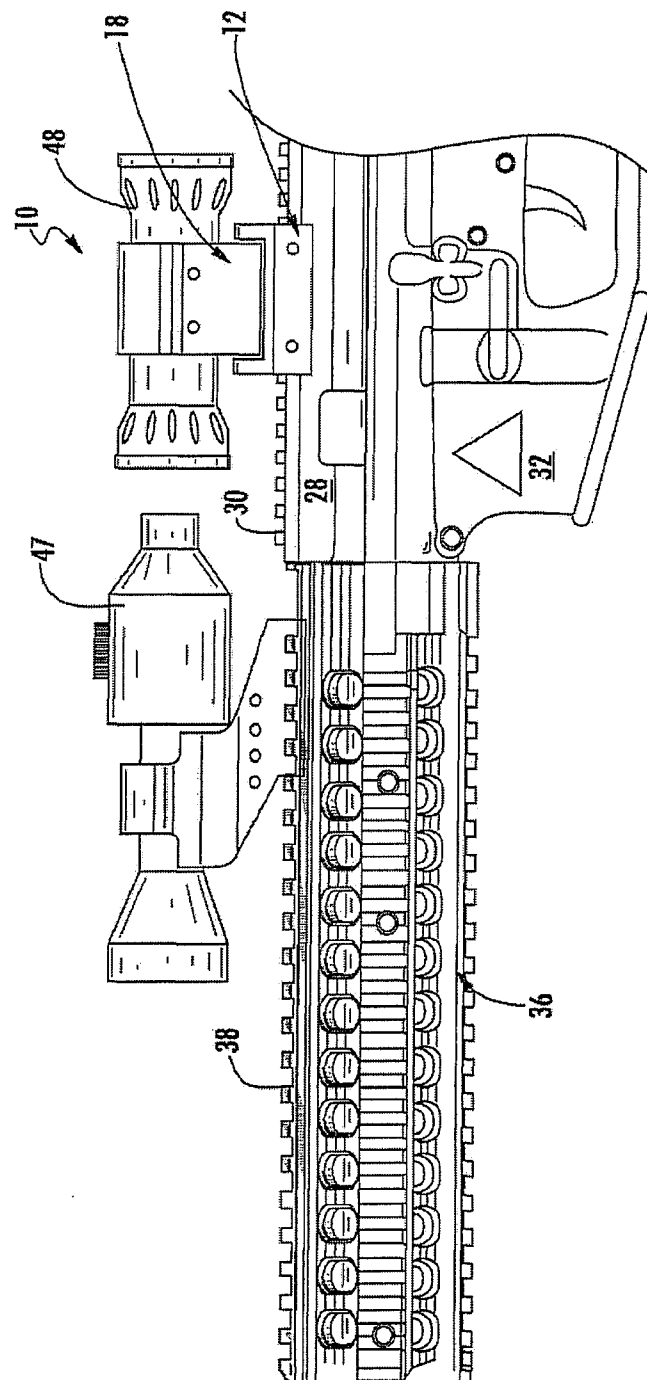


FIG. 4a

9. EXHIBIT B

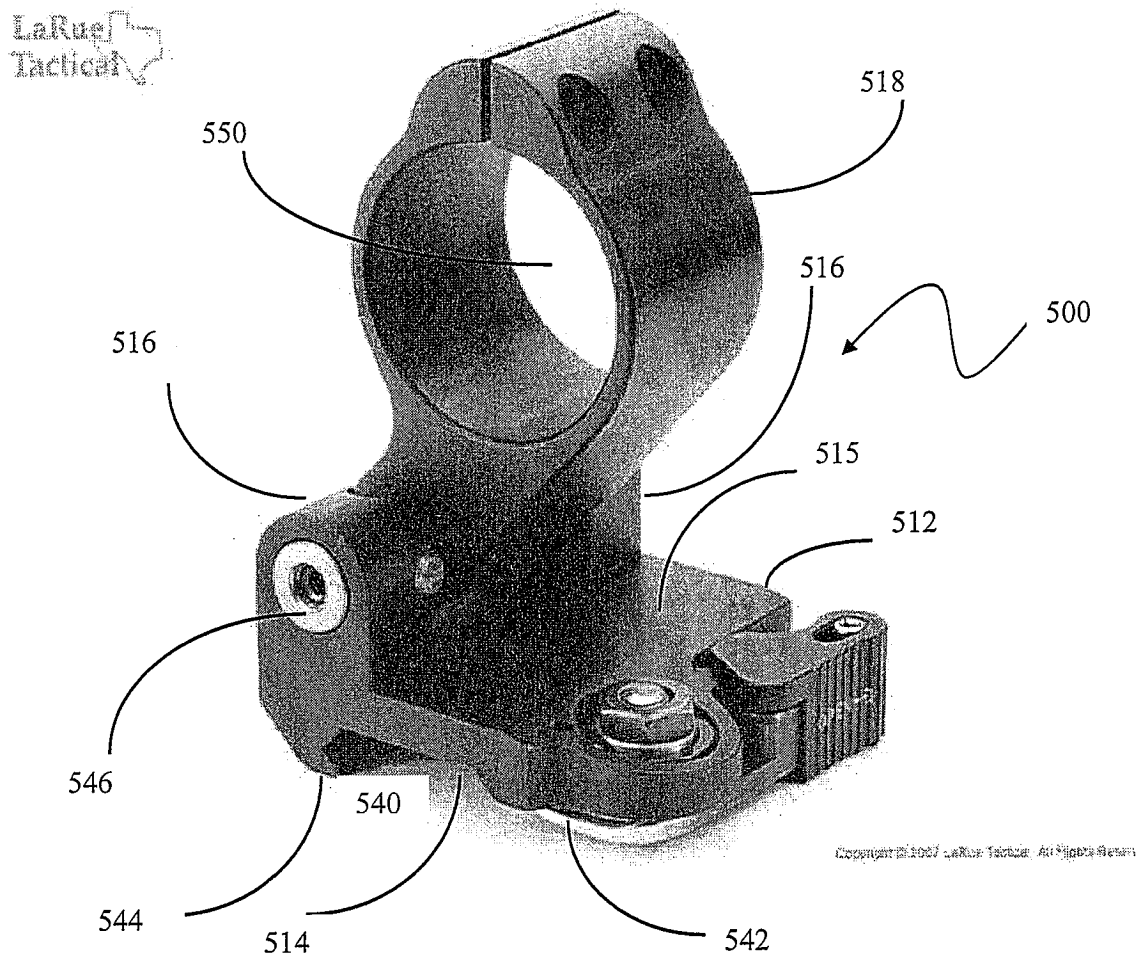


FIG. 1

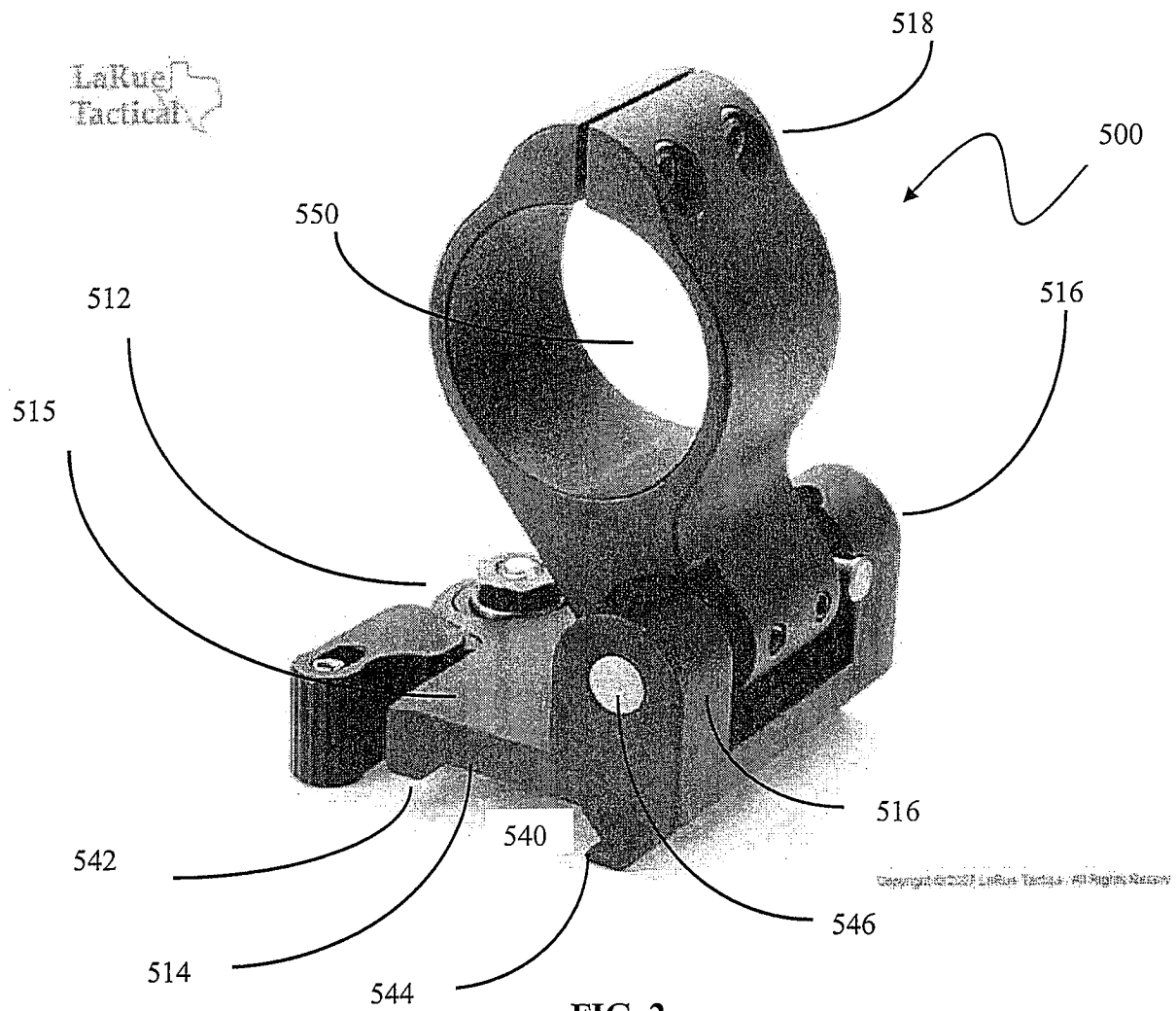


FIG. 2

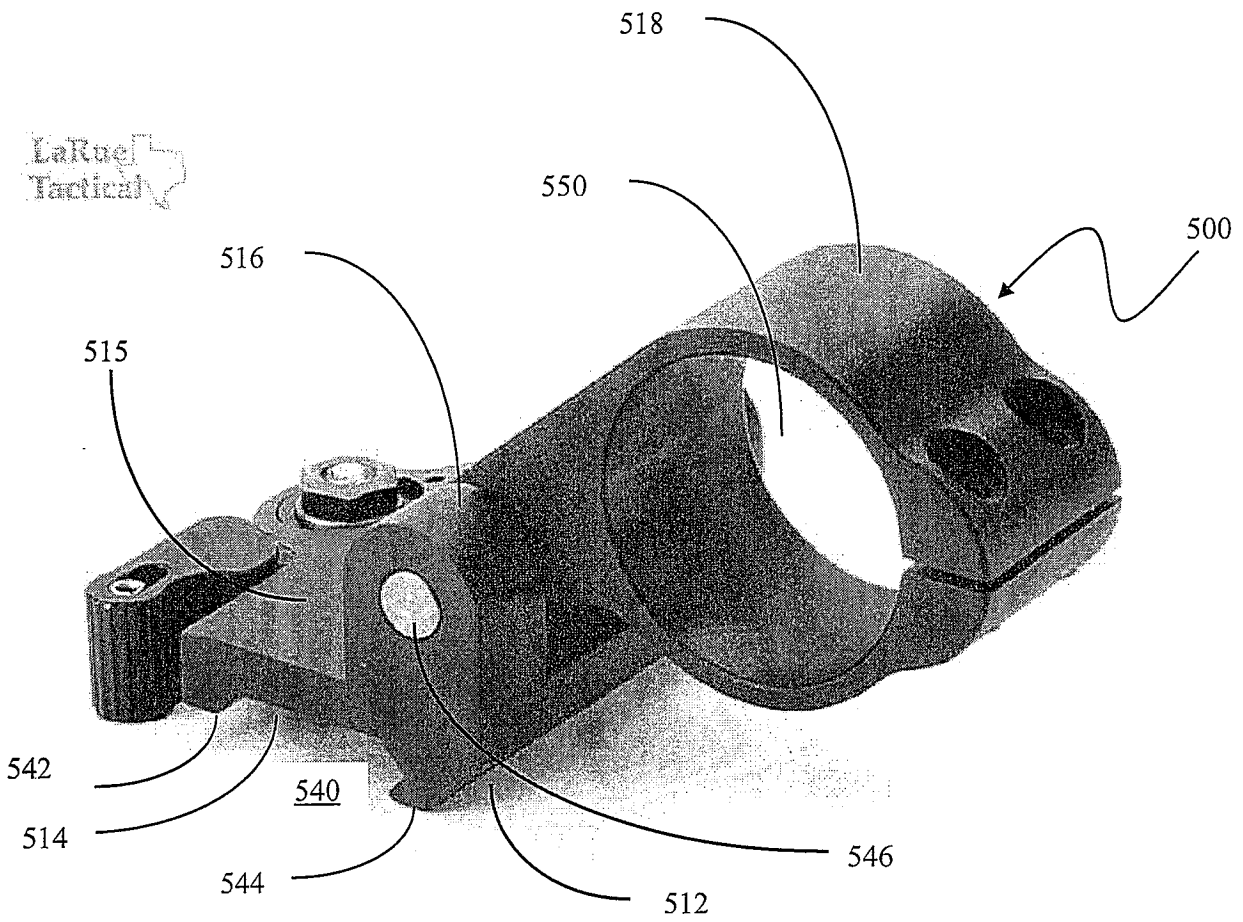


FIG. 3

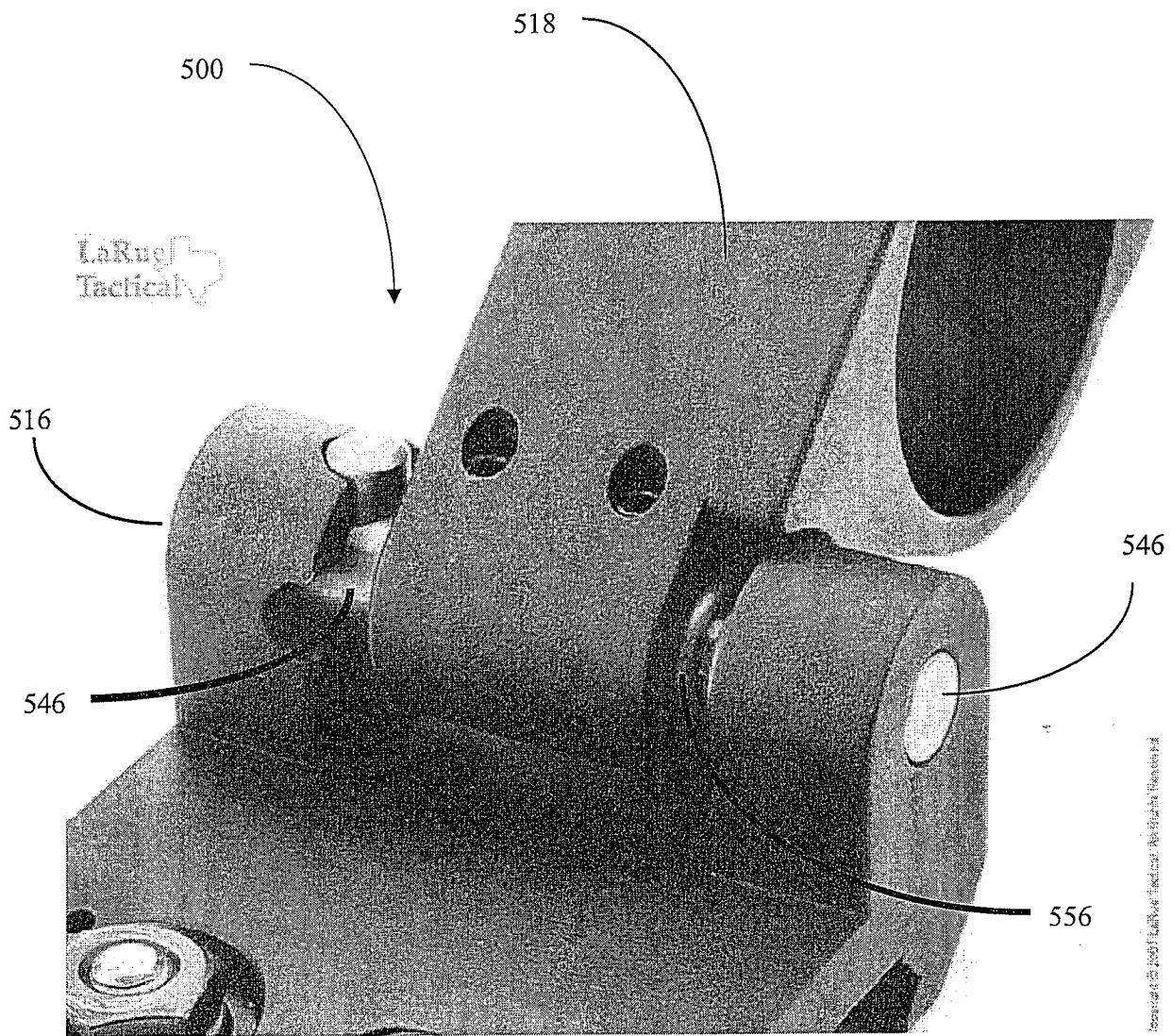


FIG. 4

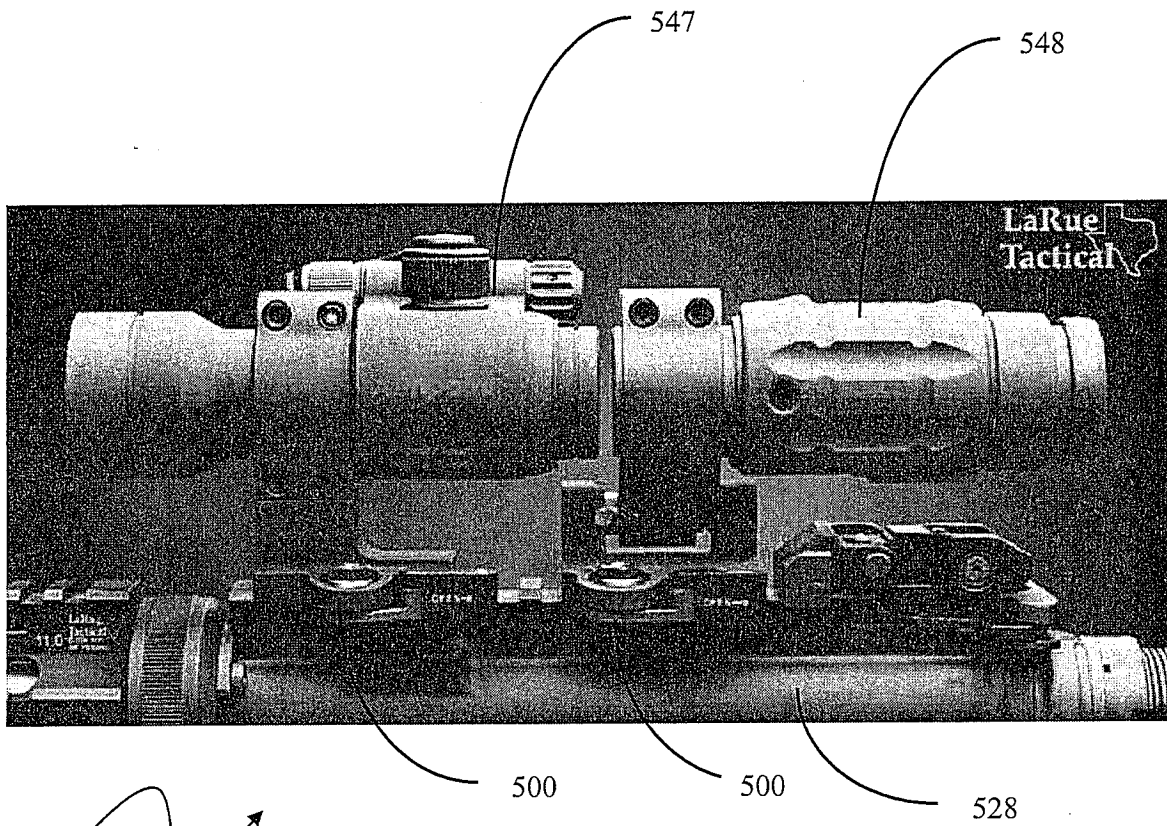


FIG. 5

TABLE 11

TABLE 8

CLAIM 1 LIMITATIONS OF U.S. PATENT NO. 7,367,152, PRIOR ART AND OTHER EVIDENCE, AND BASIS FOR INVALIDITY CONTENTIONS

Claim 1 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	Prior Art and Other Evidence	Basis for Invalidity Contentions
A pivoting accessory mount (10) for use with a firearm (24), comprising:	U.S. Patent No. 2,803,880 (the '880 patent) shows a pivoting accessory mount for a telescopic sight for a firearm (12) and U.S. Patent No. 3,874,029 (the '029 patent) shows a locking hinge.	It would be obvious to one skilled in the relevant art to combine the pivoting sight mount teachings of the '880 patent and the locking hinge teaching of the '029 patent to arrive at this limitation of the '152 patent.
A base member (12) having a front edge, a rear edge, a longitudinal axis extending between said front edge and said rear edge, a bottom surface (14) and a top surface (15), said bottom surface (14) configured to be mounted on an upper receiver (28) of said firearm (24) wherein said longitudinal axis of said mounting base (12) is in substantial alignment with barrel (34) of said firearm (24),	The '880 patent discloses a base member (45) having a front edge, a rear edge, a longitudinal axis extending between the front edge and the rear edge, a curved lower surface (16) and a top surface. The curved lower surface (16) of the base member (45) is adapted to fit the curvature of the firearm barrel or receiver, and is in substantial alignment with the firearm barrel, as shown in Fig. 6.	The '880 by Weaver teaches all elements of this limitation of claim 1 of the '152 patent.
said top surface (15) having supporting structure (16) extending upwardly therefrom;	The base member (45) is provided at longitudinally spaced points with upwardly facing lugs (20a, 20b)	

TABLE 8 (continued)

Claim 1 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	Prior Art and Other Evidence	Basis for Invalidity Contentions
<p>a mounting shaft (46) supported by and extending through said supporting structure (16), said mounting shaft (46) having a central axis that is substantially parallel to said longitudinal axis;</p> <p>An accessory clamp (18) having an upper (20) and a lower section (22), said upper section (20) including an interface (50) for receiving and retaining a firearm accessory (48), said lower section (22) configured to be received about said mounting shaft (46), wherein said accessory clamp (18) can be pivoted about said mounting shaft (46) between a first, inactive position adjacent the firearm and a second, active position protruding substantially vertically from said firearm (24);</p>	<p>The '880 patent shows two upwardly facing hinge lugs (20A, 20B), each with a separate mounting shaft. The '029 patent shows a single shaft (20) extending through member bores (12-14, 17-19).</p> <p>The '880 patent shows upper mounting rings (23) connected to lower saddle members (24) having a generally semi-circular seat (26) adapted to receive sight barrel (11). The saddle members (24) has a pair of longitudinally spaced hinge lugs (27, 28) separated by a slot (29) adapted to receive lugs (20a, 20b) of the base member (45). The upper rings (23) and the lower saddle members (24) are pivotable between an inactive (Fig. 5) and an active position (Fig. 2) vertical from the firearm (12).</p>	<p>It would be obvious to one skilled in the relevant art to combine the pivoting sight mount teachings of the '880 patent and the locking hinge teaching of the '029 patent to arrive at this limitation of the '152 patent.</p>
<p>An accessory clamp (18) having an upper (20) and a lower section (22), said upper section (20) including an interface (50) for receiving and retaining a firearm accessory (48), said lower section (22) configured to be received about said mounting shaft (46), wherein said accessory clamp (18) can be pivoted about said mounting shaft (46) between a first, inactive position adjacent the firearm and a second, active position protruding substantially vertically from said firearm (24);</p>	<p>The '880 patent shows upper mounting rings (23) connected to lower saddle members (24) having a generally semi-circular seat (26) adapted to receive sight barrel (11). The saddle members (24) has a pair of longitudinally spaced hinge lugs (27, 28) separated by a slot (29) adapted to receive lugs (20a, 20b) of the base member (45). The upper rings (23) and the lower saddle members (24) are pivotable between an inactive (Fig. 5) and an active position (Fig. 2) vertical from the firearm (12).</p>	<p>It would be obvious to one skilled in the relevant art to combine the pivoting sight mount teachings of the '880 patent and the locking hinge teaching of the '029 patent to arrive at this limitation of the '152 patent.</p>

TABLE 8 (continued)

Claim 1 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	Prior Art and Other Evidence	Basis for Invalidity Contentions
<p>wherein said mounting shaft (46) is linearly displaceable along said central axis between a latched position and a released position, wherein said mounting shaft (46) in said latched position engages said supporting structure (16) and said accessory clamp (18) thereby preventing said accessory clamp (18) from pivoting relative to said base member (12).</p>	<p>The '029 patent shows a hinge shaft (20) including a transverse pin (21), the hinge shaft (20) being axially forced upwards by force of a coil spring (22) against the transverse pin (21), positioning the transverse pin (21) into a first notch 27 or a second notch (28) of an upper journaling member (16), thereby providing a latched and position and a released position.</p>	<p>It would be obvious to one skilled in the relevant art to combine the pivoting sight mount teachings of the '880 patent and the locking hinge teaching of the '029 patent to arrive at this limitation of the '152 patent.</p>

12.

TABLE 9

CLAIM 2 LIMITATIONS OF U.S. PATENT NO. 7,367,152, PRIOR ART AND OTHER EVIDENCE, AND BASIS FOR INVALIDITY

CONTENTIONS

Claim 2 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	Prior Art and Other Evidence	Basis for Invalidity Contentions
The pivoting accessory mount (10) of claim 1, wherein said mounting shaft (46) is spring (56) biased toward said latched position (54) and selectively depressible toward said released position (54a).	The '029 patent discloses this limitation, including a hinge shaft (20) biased towards a latched position by a spring (22) and selectable toward a released position.	It would be obvious to one skilled in the relevant art to combine the pivoting sight mount teachings of the '880 patent and the locking hinge teaching of the '029 patent to arrive at this limitation of the '152 patent.

13.

TABLE 10

**CLAIM 3 LIMITATIONS OF U.S. PATENT NO. 7,367,152, PRIOR ART AND OTHER EVIDENCE, AND BASIS FOR INVALIDITY
CONTENTIONS**

Claim 3 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	Prior Art and Other Evidence	Basis for Invalidity Contentions
The pivoting accessory mount (10) of claim 1, said supporting structure (16) further comprising:		
a first support element (16) extending upwardly from the front edge of the base member (12) and a second support element (16) extending upwardly from the rear edge of the base member (12), wherein said mounting shaft (46) extends between and is supported by said first and second support elements (16), wherein said lower section (22) of said accessory clamp (18) is received about said mounting shaft (46) and is positioned between said first and second support elements (16).	The '880 patent shows two upwardly facing hinge lugs (20A, 20B) at the front and rear edge of the base member (15), each with a separate mounting shaft. The '029 patent shows a single shaft (20) extending through member bores (12-14, 17-19). The saddle members (24) has a pair of longitudinally spaced hinge lugs (27, 28) separated by a slot (29) adapted to receive lugs (20a, 20b) of the base member (45).	It would be obvious to one skilled in the relevant art to combine the pivoting sight mount teachings of the '880 patent and the locking hinge teaching of the '029 patent to arrive at this limitation of the '152 patent.

13.

TABLE 11

CLAIM 4 LIMITATIONS OF U.S. PATENT NO. 7,367,152, PRIOR ART AND OTHER EVIDENCE, AND BASIS FOR INVALIDITY

CONTENTIONS

Claim 4 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	Prior Art and Other Evidence	Basis for Invalidity Contentions
The pivoting accessory mount (10) of claim 1,		
wherein said bottom surface (14) of said base member (12) is a clamping device (40, 42, 44) configured to interface with a Weaver type interface rail.	See, for example, U.S. Patent No. 5,606,818, U.S. Patent No. 6,648,287, and U.S. Patent No. 7,188,978 for example of prior art rail clamping devices.	This limitation is fully disclosed in numerous examples of the prior art, and therefore lacks novelty.

14.

TABLE 12

CLAIM 5 LIMITATIONS OF U.S. PATENT NO. 7,367,152, PRIOR ART AND OTHER EVIDENCE, AND BASIS FOR INVALIDITY

CONTENTIONS

Claim 5 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	Prior Art and Other Evidence	Basis for Invalidity Contentions
The pivoting accessory mount (10) of claim 1,		
wherein said base member (12) includes a clamping means (40, 42, 44) to interface directly with the upper receiver of said firearm (24).	See, for example, U.S. Patent No. 5,606,818, U.S. Patent No. 6,648,287, U.S. Patent No. 7,188,978 and the '880 patent for example of prior art clamping devices.	This limitation is fully disclosed in numerous examples of the prior art, and therefore lacks novelty.

15.

TABLE 13

CLAIM 7 LIMITATIONS OF U.S. PATENT NO. 7,367,152, PRIOR ART AND OTHER EVIDENCE, AND BASIS FOR INVALIDITY CONTENTIONS

Claim 7 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	Prior Art and Other Evidence	Basis for Invalidity Contentions
The pivoting accessory mount (10) of claim 1,		
wherein said firearm accessory (48) is a sighting device (47).	See, for example, U.S. Patent No. 5,606,818, U.S. Patent No. 7,188,978 and the '880 patent for example of prior art sighting devices.	This limitation is fully disclosed in numerous examples of the prior art, and therefore lacks novelty. It is difficult to imagine a modern firearm without a sighting device.

16.

TABLE 14

CLAIM 8 LIMITATIONS OF U.S. PATENT NO. 7,367,152, PRIOR ART AND OTHER EVIDENCE, AND BASIS FOR INVALIDITY CONTENTIONS

Claim 8 Limitations (see FIG. 1-FIG. 4 in EXHIBIT A)	Prior Art and Other Evidence	Basis for Invalidity Contentions
The pivoting accessory mount (10) of claim 1,		
wherein said firearm accessory (48) is a secondary sighting device (48) configured for use in conjunction with a primary sighting device (47) also mounted on said firearm (24).	There are numerous examples in the prior art of modern firearms having more than one sighting device.	This limitation is fully disclosed in numerous examples of the prior art, and therefore lacks novelty.

33-249. OR 2,803,880 SR

SEARCH ROOM

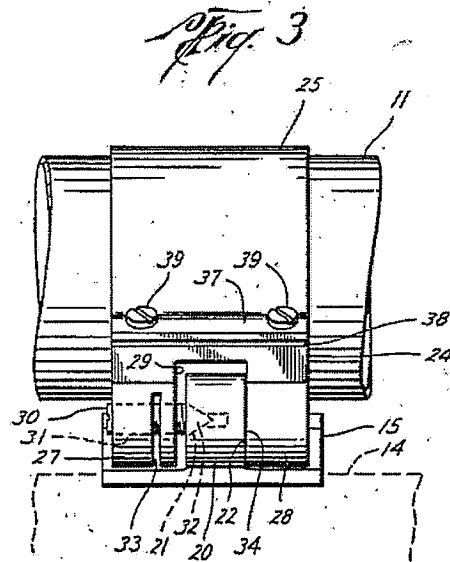
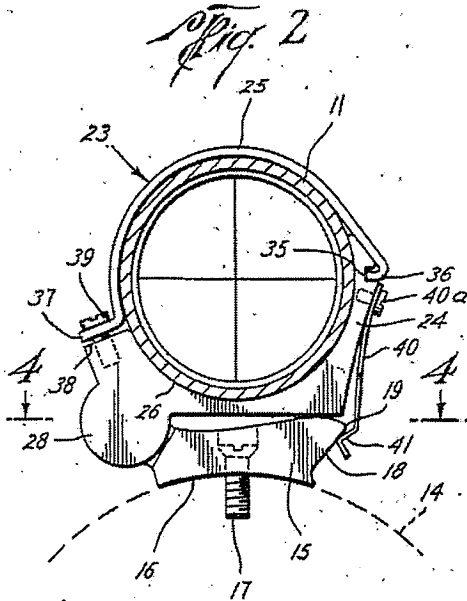
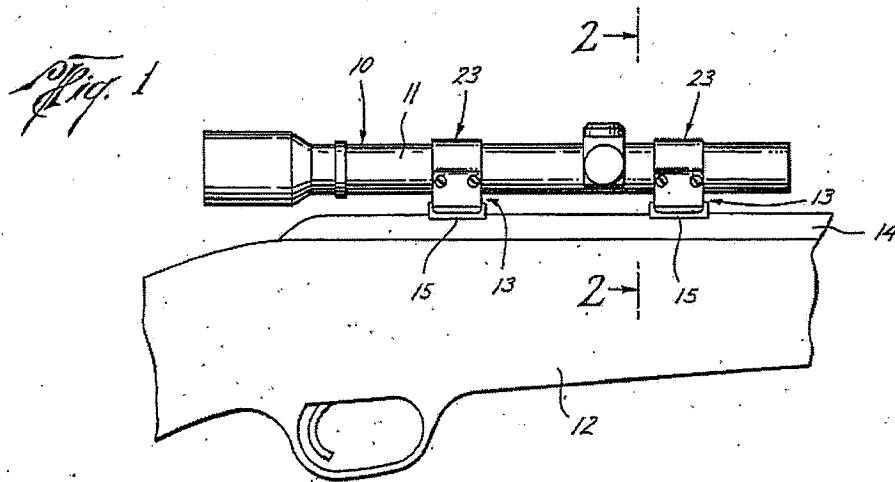
Aug. 27, 1957

W. R. WEAVER
TELESCOPE SIGHT MOUNT

2,803,880

Filed Oct. 3, 1955

2 Sheets-Sheet 1



William R. Weaver
INVENTOR.

BY

Clare
ATTORNEY

1408

Aug. 27, 1957

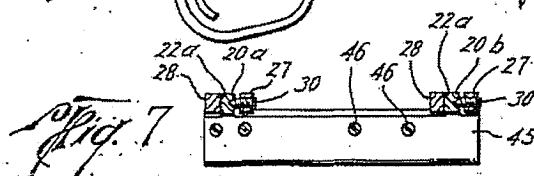
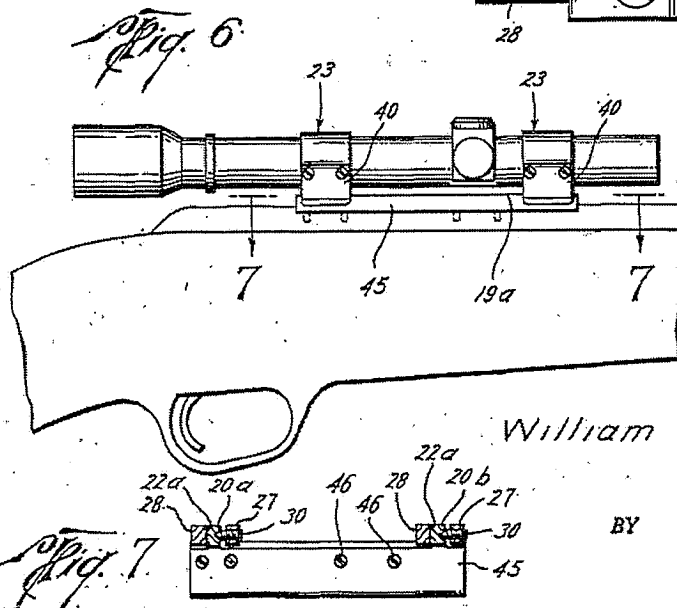
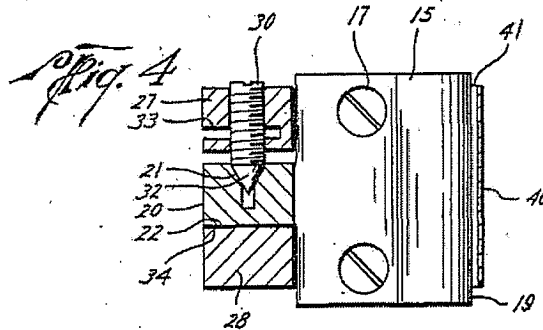
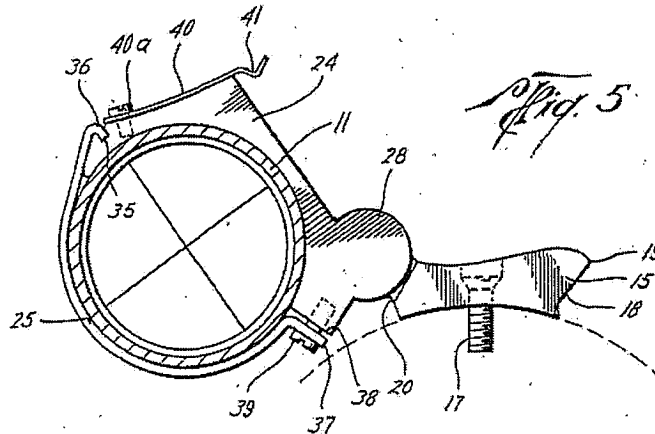
W. R. WEAVER

2,803,880

TELESCOPE SIGHT MOUNT

Filed Oct. 3, 1955

2 Sheets-Sheet 2



William R. Weaver
INVENTOR.

BY

W. R. Weaver
ATTORNEY

United States Patent Office

2,803,880

Patented Aug. 27, 1957

1

2,803,880

TELESCOPE SIGHT MOUNT

William R. Weaver, El Paso, Tex.

Application October 3, 1955, Serial No. 538,003

7 Claims. (Cl. 33—50)

This invention relates to a telescope sight mount for firearms and particularly to a hinged or pivoted type sight mount.

It is a primary object of the present invention to provide a pivoted sight mount for a telescope sight by which the sight, while remaining secured to a firearm, may be swung to and from sighting position on the firearm without requiring re-adjustment of the sight.

An important object is to provide a hinged sight mount including a base member and clamping rings in which the sight is supported, the rings being pivotally secured to the base member and having spring type lock means for locking the rings to the base member when in closed position.

A further object is to provide a novel form of hinge means for connecting the mounting rings to the base, said hinge means providing improved bearing surfaces adapted to resist or obviate recoil effect of the firearm on the mount.

Still another object is to provide in a hinged sight mount, telescope clamping rings of two-part construction, one portion comprising a hook-on type cap which is secured to the other complementary portion of the ring by means of a hook means at one end and a screw connection at the other end.

Other and more specific objects and advantages of this invention will become apparent from the following detailed description when read in conjunction with the accompanying drawing which illustrates useful embodiments of a sight mount in accordance with this invention.

In the drawing, Fig. 1 is a fragmentary side elevational view of a firearm having a telescope sight mounted thereon by means of a mounting structure in accordance with one embodiment of this invention;

Fig. 2 is an enlarged cross-sectional view taken generally along line 2—2 of Fig. 1, showing the sight mount in closed or sighting position;

Fig. 3 is an enlarged fragmentary view in side elevation, looking toward the lefthand side of the structure as seen in Fig. 2;

Fig. 4 is a fragmentary sectional view taken generally along line 4—4 of Fig. 2;

Fig. 5 is a view similar to that shown in Fig. 2, but showing the sight mount in open unlocked position;

Fig. 6 is a view similar to Fig. 1, illustrating a sight mount in accordance with another embodiment of this invention; and

Fig. 7 is a view, partly in section, taken generally along line 7—7 of Fig. 6.

Referring to the drawing and particularly to the embodiment illustrated by Figs. 1 to 5, there is shown a telescope sight, designated generally by the numeral 10, of generally conventional construction and having a tubular barrel 11 which is mounted on a firearm 12 by means of mounting devices, designated generally by the numerals 13—13.

2

are disposed in longitudinally spaced relation along the top of the firearm 12 and oriented in the same direction. The mounting devices may be mounted directly on the top of the firearm barrel 14, or it will be understood that they may be mounted on the portion of the firearm commonly referred to as the receiver into which the rear end portion of the firearm barrel conventionally extends.

Each of the mounting devices 13 comprises, a base member 15 and a mounting ring, designated generally by the numeral 23. Base member 15 is of generally rectangular shape having a curved lower face 16 adapted to fit the curvature of the firearm barrel or receiver, as the case may be. Base member 15 is adapted to be secured to the firearm barrel or receiver by any suitable securing means, such as the counter-sunk screws 17 extending through the base member into the firearm barrel or receiver, as best seen in Fig. 2. Along one longitudinal edge the base member is undercut at 18 to form along its upper margin a longitudinal laterally projecting lip 19, the function of which will be described in more detail hereinafter. At the edge opposite lip 19, base member 15 is provided with an outwardly projecting generally cylindrical hinge lug 20 (Fig. 3) having an axially positioned tapered socket 21 in one end thereof and a flat imperforate end face 22 at the other end thereof. Lug 20 is positioned generally equidistant the ends of base member 15, although the exact position thereof is not critical. Mounting ring 23 is hingedly secured to lug 20 and is of two-part segmental construction comprising a generally semi-circular saddle member 24 and a complementary generally semi-circular cap 25. Saddle member 24 has a generally semi-circular seat 26 therein adapted to receive sight barrel 11. Saddle member 24 is provided at one side with a pair of longitudinally spaced hinge lugs or ears 27 and 28 separated by a slot 29 adapted to receive lug 20. A hinge screw 30 is adapted to be screwed through a threaded opening 31 extending longitudinally through the center of ear 27 and is provided with a tapered tip 32 adapted to be received in tapered socket 21 in lug 20. Ear 27 may be provided with a transverse slot 33 to afford a degree of longitudinal resilience in ear 27. The inner end of ear 28 is formed to provide a flat imperforate surface 34 against which flat end face 22 of lug 20 may be thrust by pressure of hinge screw 30 acting through the engagement of tapered tip 32 on tapered socket 21.

With the hinge arrangement described, it will be seen that when tapered tip 32 is inserted in socket 21 and the hinge screw tightened sufficiently, the flat faces 22 and 34 will be urged toward each other and will provide a flat bearing surface of substantially large area between these members. This relatively large bearing surface will effectively prevent dislocation of the sight mount under impacts resulting from a recoil of the firearm and during handling, and will also provide a smooth bearing surface for the pivoting movement of the mounting ring about the base member.

The upper end of saddle member 24 opposite ears 28 is provided on its outer side with an inwardly directed, longitudinally extending notch or groove 35 adapted to receive an inwardly turned lip 36 formed on the adjacent end of cap 25, being adapted to form with groove 35 a hinge-type connection between cap 25 and saddle member 24 at one end thereof. Cap 25 is provided on the end opposite lip 36 with an outwardly turned flange 37 which is adapted to seat against a flat face 38 on the adjacent end of saddle member 24. One or more screws 39 extend through flange 37 and are adapted to be screwed into the saddle member 24, as shown particularly in Figs. 2, 3 and 4.

2,803,880

3

ber 24 adjacent recess 35 and projects downwardly along the face of the saddle member to a point which is generally opposite lip 19 when the mounting ring is rotated to the closed or operative position, illustrated particularly in Figs. 1 and 2.

The free end of the latch detent may be provided with an inwardly turned keeper lip 41 adapted to hook over lip 19 and resiliently engage beneath lip 19, the detent thereby forming a resilient latch to lock the mounting ring to the base member in the closed or operative position. It will be understood that by pulling keeper lip 41 outwardly away from lip 19, mounting ring 23 can be released from base member 15 and rotated to the left (as viewed in Fig. 2) to swing the sight out of sighting position along the firearm. However, normally the mount is opened merely by pushing the scope to the side with sufficient force to draw keeper lip 41 over lip 19. It will be understood also that in order to return the sight to its operative position on base member 15, the mounting ring will be rotated back to the position shown in Fig. 2 and as the ring moves toward the base member, keeper lip 41 will be forced over lip 19 and will engage beneath the lip to thereby close the latch, locking the ring member to the base member.

The hook-on cap 25 provides a very simple and easy way for securely mounting the telescope sight in the ring member. By removing screws 39, cap member 25 can be swung around the pivoted connection formed by lip 36 and recess 35 to permit the telescope to be seated in or removed from the mounting ring. When seated in the saddle portion, cap 25 can be swung back over the sight barrel and screws 39 inserted and screwed down as tightly as may be necessary to securely position the sight in the rings.

As noted previously, in one embodiment the telescope sight mount, in accordance with this invention, may comprise a pair of mounting rings 23, as described.

In the embodiment illustrated in Figs. 6 and 7, the mounting rings are identical with those previously illustrated, but a single elongate base member 45 is employed which, in cross section, is identical with base member 15 of the previously described embodiment and is adapted to be secured to the top of the firearm by means of the screws 46—46. Base member 45 is provided at longitudinally spaced points with lugs 20a and 20b which are identical in construction with lug 20 of the previously described embodiment, each being provided at one end (the rearward end) with a blank surface 22a corresponding to the end surface 22 and at the other end with a tapered socket 21. The pair of mounting rings 23 can then be secured to the respectively lugs 20a and 20b in exactly the same manner as previously described, namely, by means of hinge lugs 27 and 28 and hinge screw 30. The longitudinal edge of base member 45, opposite lugs 20a and 20b, is provided with an outwardly projecting lip 19a corresponding in shape to lip 19 of the first described embodiment and is adapted to be engaged by keeper lips 41 of the detents 40 on both mounting rings.

In the embodiment illustrated in Figs. 6 and 7, the mount is released from the base member by releasing keeper lips 41—41 from their engagement with lip 19a which will then permit the sight to be swung about the hinged connections at the back of the base member to one side of the firearm out of sighting position. When it is necessary to return the sight to its operative sighting position on top of the firearm, it is swung back and keeper lips 41 snapped over lip 19a.

By means of the described mounts, it will be seen that a telescope sight positioned in the mounts may be swung to and from operative position on the firearm repeatedly and in each instance, when returned to sighting position, will return to its previously sighted-in position and will

4

such that the thrust on both hinges is in the same direction longitudinally of the sight axis which aids greatly in preventing the sight from getting out of line during use.

It will be understood that various other alterations and modifications may be made in the details of the illustrative embodiments within the scope of the appended claims but without departing from the spirit of this invention.

What I claim and desire to secure by Letters Patent is:

1. In a telescope sight mount for firearms, a mounting device, comprising, a base member adapted to be secured on top of a firearm, a support ring adapted to be secured about a telescope sight barrel, hinge means comprising cooperating hinge members on the ring and base member hingedly connecting the ring to one side of the base member for swinging movement between positions on top and to one side of said base member, and resilient latch means mounted on the ring opposite said base member; the hinge member on said base member comprising a generally circular hinge lug having a tapered socket in one end face thereof, the other end face being of flat imperforate form, and the hinge member on said ring comprising a pair of longitudinally spaced hinge ears adapted to receive said lug between them, one of said ears having a flat imperforate end face engageable by the imperforate face of said lug, and a hinge pin extending through the other of said ears and having a tapered tip pivotally receivable in said socket.

2. A telescope sight mount for firearms, comprising, a pair of mounting devices as defined by claim 1 disposed in longitudinally spaced relation on top of a firearm.

3. A telescope sight mount according to claim 1 wherein said support ring comprises a pair of generally semi-circular complementary portions, a swingable hinge connection between said portions at one end, and screw-secured flange means connecting the opposite ends of said portions.

4. A telescope sight mount according to claim 3 wherein said swingable hinge connection includes a recess in the outer face of one of said portions adjacent an end thereof, and an inwardly turned hook element on the adjacent end of the other portion extending into said recess.

5. A telescope sight mount according to claim 1 wherein said base member has a laterally projecting longitudinally extending lip along the side thereof opposite said hinge means, said lip being releasably engageable by said latch means.

6. A telescope sight mount for firearms, comprising, an elongate generally rectangular base member adapted to be secured on top of a firearm, a pair of split support rings adapted to be secured in longitudinally spaced relation about a telescope sight barrel, a pair of longitudinally spaced hinge units hingedly connecting said rings to said base member for swinging movement between positions on top and to one side of said base member, each hinge unit including one hinge member comprising a hinge lug having a tapered socket in one end face thereof, the other end face being of flat imperforate form, a second hinge member comprising a pair of longitudinally spaced hinge ears adapted to receive said lug between them, one of said ears having a flat imperforate end face engageable by the imperforate end face of said lug, and a hinge pin extending through the other of said ears and having a tapered tip pivotally receivable in said socket, said base member having a laterally projecting lip extending longitudinally thereof on the side opposite said hinge members, and resilient latch means mounted on each of said rings adapted to resiliently latch over said lip for releasably securing said rings to said lip.

7. In a telescope sight mount for firearms, a mounting device comprising a base member adapted to be se-

2,803,880

5

prising cooperating hinge members on the ring and base member hingedly connecting the ring to one side of the base member for swinging movement between positions on top and to one side of said base member, one of said hinge members comprising a hinge lug having a tapered socket in one end face thereof, the other end face being of flat imperforate form, the other of said hinge members comprising a pair of longitudinally spaced hinge ears adapted to receive said lug between them, one of said ears having a flat imperforate end face engageable by the imperforate end face of said lug, a hinge pin extending through the other of said ears and having a tapered tip

5

10

6

pivotally receivable in said socket, and resilient latch means for releasably connecting the ring to said base member.

References Cited in the file of this patent

UNITED STATES PATENTS

2,125,932	Lennon	Aug. 9, 1938
2,193,094	Gilbert	Mar. 12, 1940
2,571,935	Pachmayr et al.	Oct. 16, 1951
2,629,175	Merritt	Feb. 24, 1953

United States Patent [19]

McCullough

[11] 3,874,029

[45] Apr. 1, 1975

[54] POSITIVE LOCKING HINGE

[76] Inventor: Richard C. McCullough, 1154
Eastwood Ave., Inglewood, Calif.
90304

[22] Filed: Jan. 16, 1974

[21] Appl. No.: 433,687

[52] U.S. Cl. 16/144

[51] Int. Cl. E05d 11/10

[58] Field of Search. 16/144, 169, 137

[56] References Cited

UNITED STATES PATENTS

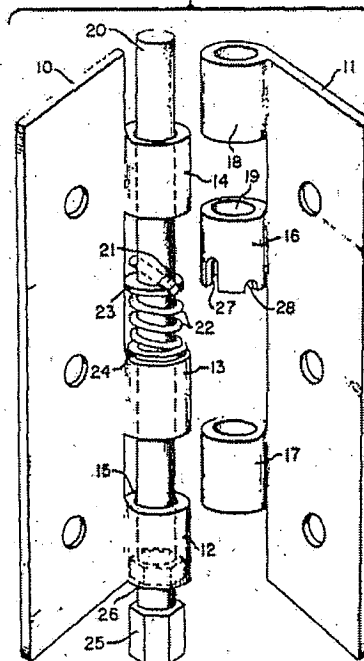
485,613	11/1892	Deane	16/144
1,076,568	10/1913	Furuya	16/144
1,166,702	1/1916	Fay	16/144
1,707,628	4/1929	Donosa	16/144
2,670,119	2/1954	Splavak	16/144
2,735,134	2/1956	Green et al.	16/144
3,744,085	7/1973	Griego	16/144

Primary Examiner—Paul R. Gilliam
Assistant Examiner—Doris L. Troutman
Attorney, Agent, or Firm—Pastoriza & Kelly

[57] ABSTRACT

The positive locking hinge includes plates having lower and upper members defining journalling bores for a hinge shaft. This shaft includes a transverse pin receivable in a notch in the upper member of one hinge plate to lock the shaft to the plate against rotation. The lower end of the shaft in turn includes a keying arrangement for cooperation with the lower portion of the lower member to lock the shaft to this lower member so that the other plate is locked to the shaft against rotation. The shaft may be moved downwardly to release the pin from the notch and then rotated slightly so that the transverse pin is received in a shallower notch so that the keying arrangement on the lower end of the shaft is free and the hinge plates can swing freely relative to each other.

4 Claims, 5 Drawing Figures



PATENTED APR 1 1975

3,874,029

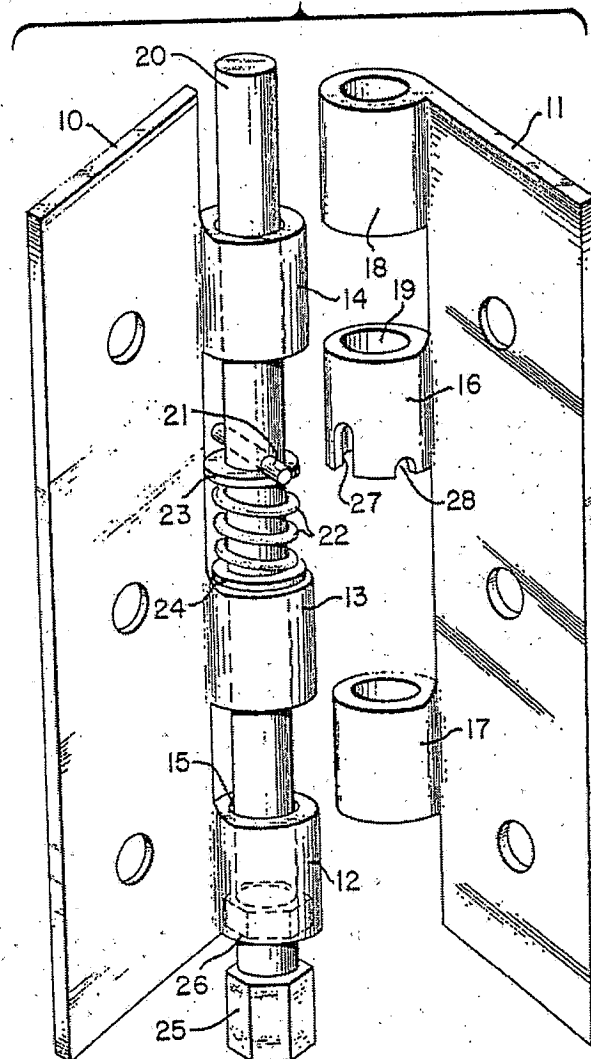


FIG. 1

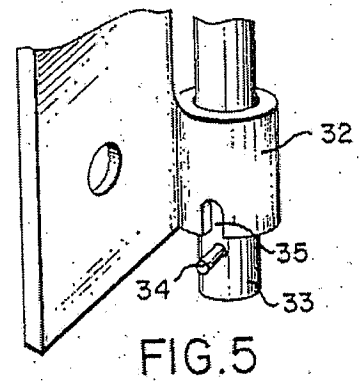
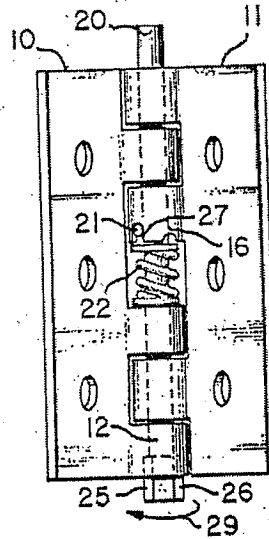
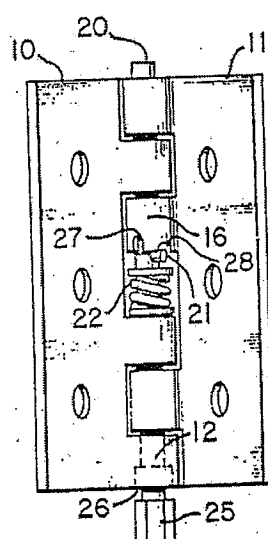


FIG. 5

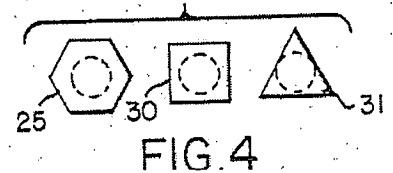


FIG. 4

3,874,029

1

POSITIVE LOCKING HINGE

This invention relates generally to hinges and more particularly to an improved positive locking hinge wherein the hinge plates by a simple manual manipulation can be caused to lock against swinging movement relative to each other in given desired positions.

BACKGROUND OF THE INVENTION

Locking hinge plates are well known in the art, a typical plate being fully shown and described in U.S. Pat. No. 3,629,900 issued Dec. 28, 1971.

One of the primary problems in commercial development of such locking hinges is the expense of manufacture. Generally, the hinges such as shown in the above-referred to U.S. patent require a number of additional component parts. Further, the machining necessary on journalling portions of the hinge plates for receiving a hinge shaft or pin become expensive in providing for a locking of the plates in a desired relationship. Desirable features which have not been found in available locking hinges include, in addition to a design which can be economically produced, means for holding the locking arrangement inactive so that the hinges can readily perform their usual function and wherein the means can be released to assure a positive locking of the hinges as opposed to a mere "detenting" of the hinges into desired positions. Moreover, it is desirable in any such positive locking hinge type arrangement that protuberances above and below the hinge plates be minimized.

BRIEF DESCRIPTION OF THE PRESENT INVENTION

With the foregoing in mind, the present invention contemplates an improved locking hinge which is economical to manufacture, employs a minimum number of components for accomplishing the desired end, can be adjusted to operate as a freely swinging hinge and by a simple additional adjustment be made to lock in one or more desired given positions in a positive manner, and wherein protuberances above and below the hinge plates are minimized.

More particularly, the locking hinge includes a first plate having a lower member defining a journalling bore at a lower portion of an edge of the plate and a second plate having an upper member defining a journalling bore at a portion of its edge higher than said lower member so that when the edges of the plates are disposed in parallel adjacent relationship the bores in the lower and upper members are axially aligned and vertically spaced apart. A single hinge shaft passes through the aligned bores and includes a transverse pin extending radially from the shaft between the lower and upper members. Spring means under the pin urge the shaft axially upwardly, the lower end of the shaft and the lower portion of the lower member terminating in keying means such that upward movement of the shaft a first given distance when rotated to a given position locks the shaft to the lower member. The lower edge of the upper member includes a first notch of vertical depth greater than the radius of the pin for receiving the pin when the shaft is rotated to position the pin vertically under the first notch and then moved upwardly the first given distance to thereby lock the shaft to the upper member whereby the first and second

2

The lower end of the upper member also includes a second notch of depth less than the depth of the first notch so that the shaft may be lowered said given distance and rotated to position the pin vertically under the second notch and thence moved upwardly into the second notch, the latter upward movement being sufficiently less than the given distance to prevent engagement of the keying means. As a consequence, the shaft is no longer rotatably locked to the lower member and the plates can swing freely relative to each other.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the invention will be had by now referring to the accompanying drawings in which:

FIG. 1 is an exploded perspective view of the positive locking hinge of this invention illustrating the basic components thereof;

FIG. 2 is a front elevational view of the structure of FIG. 1 in assembled relationship and wherein the components are positioned so that free swinging of the hinge plates relative to each other can take place;

FIG. 3 is a view similar to FIG. 2 but illustrating another position of certain of the components wherein the hinge plates are locked against swinging movement relative to each other;

FIG. 4 illustrates different types of keying means which may be utilized with the embodiments of FIGS. 1 to 3; and,

FIG. 5 is an enlarged, fragmentary perspective view of yet another type of keying means.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. 1, the positive locking hinge includes first and second plates 10 and 11. The first plate 10 includes a lower member 12 at a lower edge portion of the plate 10 and, in the embodiment illustrated, additional members 13 and 14 vertically spaced along the vertical edge of the plate. Each of these members includes a journalling bore such as indicated at 15 for the lower member 12.

The second plate 11 in turn includes an upper member 16 and may include additional members 17 and 18 at its vertical edge also defining journalling bores such as indicated at 19 for the upper member 16. The additional members are vertically staggered relative to each other so that when the plates 10 and 11 are positioned with their edges in adjacent parallel relationship, the members are interleaved so that the various bores therein are axially aligned.

In FIG. 1 there is shown a hinge shaft 20 passed through the bores of the members 12, 13 and 14. It will be understood that when the hinge plates are assembled, the remaining members 17, 18 and 19 of the plate 11 would also receive the pin 20. The plate 11 is shown in exploded view in order to better expose the various components.

It will be noted that the hinge shaft 20 includes a transverse pin 21 extending radially from the shaft in a position between the upper member 16 and lower member 12 when the plates are assembled. Suitable spring means in the form of a coil spring 22 which may be positioned between washers 23 and 24, exerts an upward force against the transverse pin 21 thereby tending to move the shaft 20 axially upwardly. Further, the

3,874,029

3

the embodiment shown in FIG. 1, this keying means takes the form of an hexagonal head 25 on the lower end of the shaft and a correspondingly shaped hexagonal socket 26 at the entrance portion of the bore 15 in the lower member 12.

Referring now to the plate 11 and particularly the upper journalling member 16, it will be noted that the lower portion of this upper member includes a first notch 27 of vertical depth greater than the radius of the pin 21 on shaft 20. Further, the same member 16 includes on its lower end in the particular embodiment illustrated, a second notch 28 which is of less depth than the first notch 27.

FIG. 2 illustrates the plates of FIG. 1 in assembled relationship wherein the transverse pin 21 is received in the second notch 28. In this position, it will be noted that the keying hexagonal head 25 is held out of the socket 26 in the lower entrance portion of the bore in member 12.

FIG. 3 illustrates the plates 10 and 11 wherein the shaft has been rotated as indicated by the arrow 29 so that the transverse pin 21 is receivable in the first notch 27. Since this notch is of greater depth than the notch 28 of FIG. 2, the entire shaft 20 can move upwardly a given distance. This distance is such that the hexagonal head 25 may be received when rotated to a given position in the hexagonal socket 26 of the member 12.

OPERATION OF THE EMBODIMENT OF FIGS 1-3

Referring first to FIG. 2, the pin 21 in the second shallower notch 28 holds the shaft 20 in a position such that the head 25 is free of the socket 26. As a consequence, the shaft 20 can rotate with the hinge plate 11 freely so that the plates swing relatively to each other to function as a normal hinge.

When it is desirable to provide the locking feature, it is only necessary for a person to pull downwardly slightly on the head 25 and rotate the shaft in the direction of the arrow 29 as shown in FIG. 3 to position the pin 21 beneath the first notch 27. The spring 22 will then urge the shaft and pin 21 upwardly to be wholly received within this notch. It will then be appreciated that the journalling member 16 on the second plate 11 is rotationally locked to the shaft 20.

It will also be evident from FIG. 3 that the upward movement of the shaft through a given distance will be sufficient to permit the hexagonal head 25 to be received in the hexagonal socket of the first member 12. Thus, this member and the plate 10 are keyed to the shaft 20 against rotational movement so that in effect, the plates 10 and 11 are locked against swinging movement relative to each other.

In the foregoing operation, it will be understood that the shaft 20 must be rotated to a given rotational position to permit the hexagonal head 25 to fit within the hexagonal socket 26. If the first notch 27 is not vertically above the transverse pin 21, the plate 11 is rotated slightly to so position the notch so that pin 21 can be received therein and the hexagonal head 25 fully received in the socket portion 26.

Because of the particular hexagonal head and socket design, it will be appreciated that there are essentially six given rotational positions of the shaft wherein the hexagonal head can be keyed within the hexagonal socket portion of the member 12. Thus, there are effectively provided six different positions of the plates 10 and 11 wherein they can be locked together. Further,

4

because of the vertical walls of the hexagonal sides of the head and the cooperating socket portion, the locking is positive and there is no possibility of the keying means separating by any type of camming action.

FIG. 4 illustrates an end view of the hexagonal head 25 showing the six rotational positions which are spaced by 60°. Also in FIG. 4 are shown alternative arrangements for the keying means wherein the head may be of square shape as indicated at 30 in which case there would be four given rotational positions of locking or triangular shape as shown at 31 in which case there would be three given rotational positions at which the plates can be locked. The socket is correspondingly shaped.

In the enlarged view of FIG. 5, there is shown an alternative type of keying means wherein the lower end of a hinge shaft 33 is provided with a transverse keying pin 34. The lower end of a lower journalling member 32 for one of the plates in turn is provided with a keying slot 35 arranged to receive the pin 34 to key the member to the shaft.

The upper components of the shaft and hinge structure is the same as described in FIGS. 1 through 3. With the particular type of keying means shown in FIG. 5, there is only one angular relationship at which the plates may be locked in a positive manner against rotation relatively to each other.

From the foregoing description, it will be evident that the present invention has provided a simple and economical positive locking type hinge. The various components described are very simple to machine as compared with prior art locking hinges. Moreover, and as described, a simple manipulation of the hinge shaft permits the hinge plates to swing freely in the manner of a conventional hinge should a locking feature not be desired. On the other hand, when it is desired to hold the hinge plates in a fixed position relative to each other, it is a simple matter to rotate the hinge shaft to position the transverse pin within the first notch 27 as described in FIG. 3.

It will also be appreciated that a minimum of protuberances extend above and below the hinge plates. Thus, there is only a small portion of the shaft 20 at the upper end and the shaft head at the lower end. The lengths of these portions are exaggerated in the drawings for purposes of clarity but it will be appreciated that they can be substantially less without impairing operation of the hinge structure.

What is claimed is:

1. A positive locking hinge including, in combination:
 - a. a first plate having a lower member defining a journalling bore at a lower portion of an edge of the plate;
 - b. a second plate having an upper member defining a journalling bore at a portion of its edge higher than said lower member so that when the edges of the plate are disposed in parallel adjacent relationship, the bores in the lower and upper members are axially aligned and vertically spaced apart;
 - c. a hinge shaft passing through the aligned bores and including a transverse pin extending radially from the shaft between the lower and upper members; and
 - d. spring means under said pin urging said shaft axially upwardly,
 - e. the lower end of said shaft and the lower portion of said lower member terminating in keying means

3,874,629

5

20 and the plunger 26' to rise, thus opening the valve. One, or the other, or both of the conduits 96 and 100 may be provided in a working valve.

FIG. 3 illustrates a modification wherein the diaphragm 20 in either of the embodiments described previously is replaced by an O-ring 21 which encircles and hugs the piston 73 or 73'. The O-ring may seat in the groove 23 at the perimeter of the piston where the rounded edges of the discs 76 and 78 come together. Like the diaphragm 20, the O-ring 21 constitutes a sealing means for the piston 73 and 73', but the O-ring slidably engages the inner cylindrical surface of the chamber 14.

FIG. 4 illustrates another embodiment of the invention which is identical to the embodiment of FIG. 1 except in the manner of releasably attaching the two housings together. Corresponding elements in FIG. 4 are given the same reference numerals as in FIG. 1, but with an *a* suffix added, and the detailed description of these elements will not be repeated. In FIG. 4, the actuator housing 12a has a centrally located, annular flange 110 at the bottom which is internally screw-threaded. The upper end of the valve housing 22a is externally screw-threaded at 111 for screw-threaded, substantially fluid-tight insertion in the actuator housing flange 110. The valve housing presents an upwardly-facing, annular, flat shoulder 112 extending around the screw-threaded portion 111 for engagement by the bottom end face 113 on the actuator housing flange 110 when the two housings are assembled to each other. When the two housings are so assembled, the head 51a on the upper end of plunger 26a is biased by spring 72a up against the bottom of the actuator housing 12a around the opening 44a in the latter in the same manner as in the embodiment of FIG. 1.

Thus, the invention provides a fluid operated needle valve which combines the advantages of fluid actuation with the tight sealing characteristics of a needle valve closing element to provide a valve which will operate continuously under both high pressure and high temperature conditions without permitting any bypass and/or leakage of fluid. The valve has a relatively long operating life since it is resistant to deterioration of the needle and valve seat surface. This prolonged life can be partly attributed to the gentle action of the fluid on the actuator. The provision of the fluid-operated actuator in one housing and the needle valve element in another housing, that is releasably attached to the actuator housing, enables either the actuator assembly or the valve assembly to be repaired or replaced without disturbing the other.

I claim:

1. In a fluid operated needle valve comprising:
a valve housing having an inlet and an outlet and an annular valve seat between said inlet and said outlet, a conical needle valve element reciprocable in

6

said housing toward and away from sealing engagement with said valve seat to control fluid flow between said inlet and said outlet;

a separate actuator housing releasably attached to said valve housing on the opposite side of said needle valve element from said valve seat, said actuator housing providing a fluid chamber, a fluid-displaceable actuator reciprocable in said fluid chamber between a retracted position away from said valve housing and an extended position toward said valve housing, fluid inlet and outlet means communicating with said fluid chamber for effecting movement of the actuator, and spring means in said actuator housing biasing said actuator to said retracted position;

the improvement wherein

said valve housing has a cavity therein which is open at its outer end at the side of the valve housing toward the actuator housing and is located on the opposite side of the needle valve element from said valve seat;

and said actuator housing has an end wall extending across said fluid chamber therein and extending flat across the open outer end of said cavity in the valve housing, said end wall having an opening therein leading into said cavity in the valve housing and aligned with said needle valve element and said valve seat;

and further comprising:

a valve stem connected to said needle valve element and extending therefrom into said cavity in the valve housing and terminating thereat in an enlarged head, spring means in said cavity engaged between the inner end of said cavity in the valve housing and said head to bias the latter outwardly against said end wall of the actuator housing and to position said needle valve element away from sealing engagement with said valve seat;

and a plunger attached to said fluid displaceable actuator and extending therefrom toward said end wall of the actuator housing and slidably received in said opening in said end wall in all positions of the actuator between said retracted and extended positions, said plunger in said retracted position of the actuator being retracted thereby to a position permitting said enlarged head on the valve stem to directly engage said end wall of the actuator housing around said opening in the latter, said plunger being engageable with said head on the valve stem to move the needle valve element toward the valve seat upon displacement of the actuator from its retracted position toward its extended position.

* * * * *

60

65

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,874,029 Dated April 1, 1975

Inventor(s) Richard C. McCullough

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Delete columns 5 and 6 and substitute:

--such that upward movement of said shaft a first given distance when rotated to a given position locks the shaft against rotation to said lower member,

f. the lower edge of said upper member including a first notch of vertical depth greater than the radius of said pin for receiving said pin when said shaft is rotated to position the pin vertically under said first notch and then moved upwardly said first given distance to thereby lock said shaft to said upper member whereby said first and second plates are locked against swinging movement relative to each other,

g. the lower end of said upper member including a second notch of depth less than the depth of said first notch, whereby said shaft may be lowered said given distance and rotated to position said pin vertically under said second notch and thence moved upwardly into said second notch, said latter upward movement being sufficiently less than said given distance to prevent engagement

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTIONPatent No. 3,874,029 Dated April 1, 1975Inventor(s) Richard C. McCullough PAGE - 2

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

(Continued from previous page)

of said keying means so that said shaft is no longer rotatably locked to said lower member and said plates can swing freely relative to each other.

2. A positive locking hinge according to claim 1, in which said keying means is defined by a non-circular lower entrance portion to the bore in said lower member and a correspondingly shaped non-circular head on the lower end of such shaft, dimensioned to be received in said non-circular entrance portion when rotated to said given position.

3. A positive locking hinge according to claim 1, in which said keying includes a transverse keying pin in the lower portion of said shaft, the lower edge of said lower member having a keying notch of greater depth than the radius of said keying pin such that when said keying pin is received in said keying notch said shaft is positively locked to said lower member.

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,874,029 Dated April 1, 1975
Inventor(s) Richard C. McCullough Page - 3

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

(Continued from second page)

4. A positive locking hinge according to claim 1, in which said plates each include additional members at their adjacent edges defining journalling bores, the additional members on the plates being vertically staggered relative to each other so that they may be interleaved to axially align their bores for receiving said shaft.

Signed and Sealed this

twenty-third Day of *September* 1975

[SEAL]

Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents and Trademarks

33-249. OR 2,571,935 SR

Oct. 16, 1951

F. A. PACHMAYR ET AL

2,571,935

TELESCOPIC SIGHT MOUNT

Filed May 10, 1946

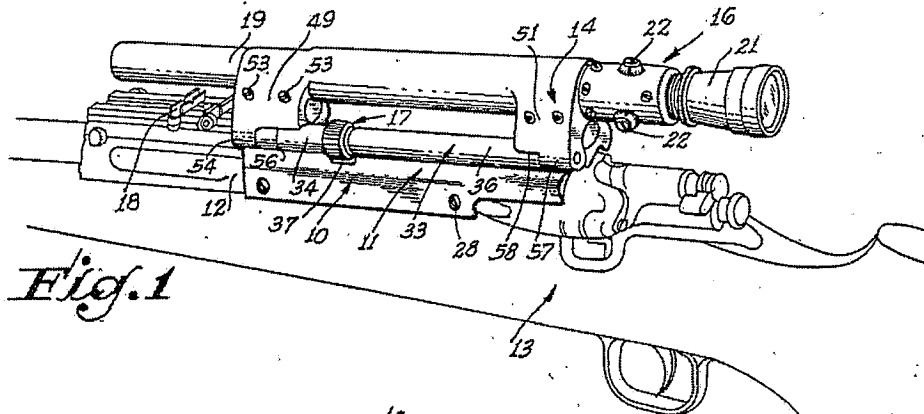


Fig. 1

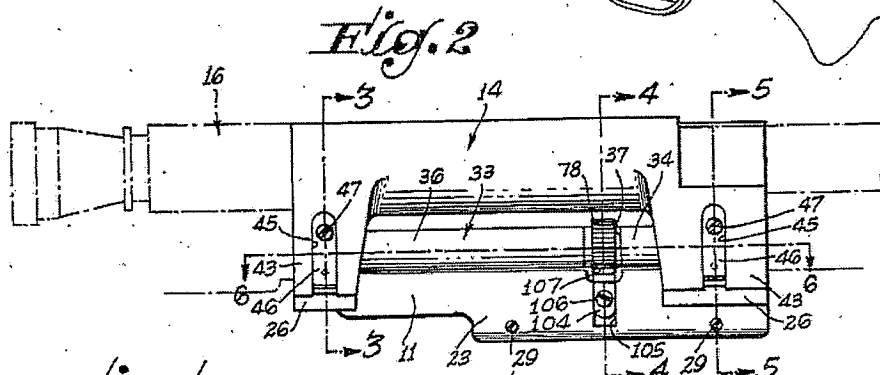


Fig. 2

Fig. 3

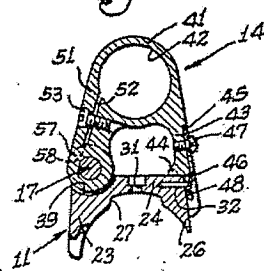


Fig. 6

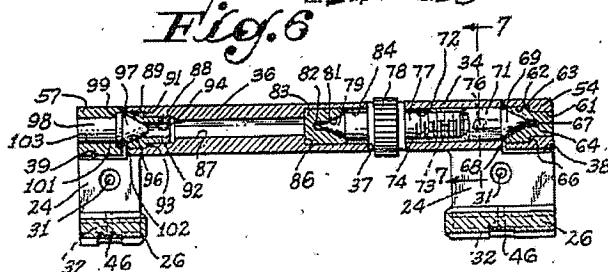


Fig. 4

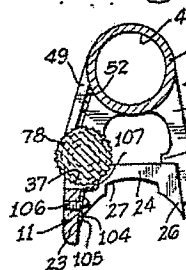


Fig. 5

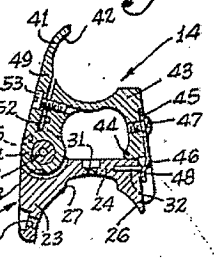
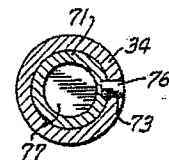


Fig. 7



INVENTOR
FRANK A. PACHMAYR
ROGER H. STOKES
BY HARRIS, KIECH, FOSTER & HARRIS
FOR THE FIRM
ATTORNEYS

Patented Oct. 16, 1951

2,571,935

UNITED STATES PATENT OFFICE

2,571,935

TELESCOPIC SIGHT MOUNT

Frank A. Pachmayr, Culver City, and Roger
Howard Stokes, Los Angeles, Calif.

Application May 10, 1946, Serial No. 668,940

6 Claims. (Cl. 33—50)

1

Our invention relates to a mount for attaching conventional telescopic gun sights to firearms and a primary objective thereof is to provide a mount which is adapted to permit repeated installation or removal of the telescopic sight without impairing the accuracy of alignment thereof relative to the longitudinal axis of the barrel of the firearm.

Accurate alignment of the line of sight of the telescope with respect to the bore of the gun is of paramount importance if the desired accuracy of fire is to be achieved under all conceivable operating conditions. Furthermore, the mount must be sufficiently rigid to ensure that the required accuracy of alignment is maintained under all normal conditions of operation and that the prescribed degree of alignment will be duplicated repeatedly despite frequent removal or installation of the telescopic sight.

In the past, conventional telescopic gun sight mounts have largely relied upon the action of dovetail or mortise and tenon joints and set screws in attempts to preserve accurate alignment. Our experience has indicated that mounts of this general character are frequently unsatisfactory, perhaps principally because of the rather large accurately-machined surfaces required by joints of this nature. Such conventional joints, which may be perfect initially, appear to be subject to rapid wear and are therefore incapable of preserving the high degree of accuracy required for any appreciable length of time. Telescopic sights are subject to frequent removal and installation during normal use thereof and conventional dovetail or mortise and tenon joints frequently do not permit repeated duplication of the prescribed line of sight.

Other conventional mounts employ cylindrical journals to provide a pivotal interconnection between the gun and telescopic sight. Connections of this character are subject to similar inherent disadvantages, since any discrepancies between the shaft and bearing diameters result in variations of alignment. These alignment variations are magnified appreciably as wear increases the play in the journals with a resultant loss of firing accuracy.

In view of these considerations, another primary objective of our invention is the provision of a mount adapted to overcome the inherent disadvantages of conventional mounts and we prefer to effect a realization of this objective by providing a pivotal mount which includes a con-

2

template the employment of a base member which may be rigidly secured to the receiver of a gun, a carriage member adapted to receive and retain a telescopic sight in a positive and reliable manner, and a centering means carried by one of the members for pivotally interconnecting the base and carriage members. We prefer to employ a centering means which incorporates a conical journal adapted for rotation within a complementary bearing and to provide a means for adjusting the bearing load by axial displacement of the centering means to compensate for wear.

Another objective of our invention is the provision of a telescopic sight mount which may be installed without removal of the conventional iron sights and which may be rotated to one side of the barrel substantially instantaneously to permit clip-loading of the gun and to permit employment of the iron sights. The importance of this objective will be recognized by those who use rifles for hunting purposes, since a telescopic sight is useless for rapid firing at a moving object at extreme close range. Retention of the iron sights is also essential in the event that the telescopic sight is damaged or unusable due to rain or snow. Conventional sight mounts ordinarily do not permit ready displacement of the telescopic sight, are not adapted for quick removal, and require an inordinate amount of time to effect installation or removal thereof. The provision of a readily removable telescopic sight mount is another salient feature of our invention, as this permits the telescopic sight to be carried separate from the gun in a safe carrying case yet permits it to be quickly mounted on the gun when the need therefor arises.

An additional objective of our invention is the provision of a readily releasable means for maintaining the telescopic sight over the center of the barrel in the desired position for normal operation.

An exemplary embodiment of a telescopic sight mount adapted for effecting a realization of these and various other objectives and advantages of our invention will be described in detail hereinafter and is shown in the accompanying drawing, which is for illustrative purposes only, wherein:

Fig. 1 is a perspective view illustrating an application of the telescopic sight mount to a conventional telescope and rifle;

Fig. 2 is a side elevational view of the

2,571,935

3

through the mount and taken along the lines 3—3, 4—4, and 5—5, respectively, of Fig. 2;

Fig. 6 represents a horizontal section through the mount and taken as indicated by the line 6—6 of Fig. 2; and

Fig. 7 is a fragmentary sectional view taken as indicated by the line 7—7 of Fig. 6.

The telescopic sight mount, indicated generally by the numeral 10, includes a base member 11, which is rigidly attached to the receiver 12 of a conventional rifle 13, and a carriage member 14, which is rigidly secured to a conventional telescopic sight 16, the base member 11 and carriage member 14 being pivotally interconnected by a bearing assembly 17 whose axis is preferably parallel to the bore of the rifle 13. The rifle 13, which may be of any desired make or model, is of the bolt action type and is provided with a conventional rear iron sight 18. The telescope 16, which also may be of any desired make or model, includes a barrel 19 and an eye-piece 21 and is provided with knurled knobs 22 for adjusting the position of the rear cross-hairs thereof (not shown) to effect the desired relationship between the line of sight of the telescope 16 and bore of the rifle 13 in the conventional manner.

The base member 11 is preferably of the single-piece bridge-type construction illustrated and includes a continuous, longitudinally-oriented flange 23 and longitudinally-spaced central sections 24 and flanges 26 which cooperate to define a longitudinal recess 27, the latter being complementary to and adapted to embrace the receiver 12 of the rifle 13. The base 11 is attached to the receiver 12 by means of screws 28 which are threaded therethrough through holes 29 in the flange 23 and by means of additional screws (not shown) which can extend through counterbored holes 31 in the central sections 24 into threaded engagement with the receiver 12, so as to rigidly fix the base to the receiver. The flanges 26 are each provided with a projecting latch pin 32 whose function will be described hereinafter. Formed integrally with the base 11 and disposed adjacent the upper edge of the flange 23 is a longitudinally-oriented tubular member 33 which contains the bearing assembly 17 and which is divided into two axially aligned tubular sections 34 and 36 by an arcuate groove 37, the latter being concentric therewith. The groove 37 extends downwardly through the tubular member 33 of the base member 11 into the body of the base member to divide the tubular member 33 into the axially aligned tubular sections 34 and 36. The groove 37 is concentric with the tubular member 33 to receive a knurled element 78 which will be discussed in more detail hereinafter. This relation is best shown in Fig. 1 of the drawing. The base 11 is also provided with a counterbore 38 adjacent the forward end of the tubular section 34 and a similar counterbore 39 adjacent the rearward end of the tubular section 36, the counterbores 38 and 39 being concentric with the tubular member 33 and performing a function which will be described in detail hereinafter.

The carriage member 14, which is pivotally attached to the base 11 by the bearing assembly 17 in a manner which will be described later, is of the bridge type and includes a longitudinally-oriented tubular section 41 which is provided with a bore 42 therein for the reception of the barrel 19 of the telescope 16. The right side of the tubular section 41 as seen in Fig. 3 is provided with

4

for engagement with the upper surface of the central sections 24 of the base 11 as illustrated in Figs. 3 to 5, inclusive. The standards 43 are provided with spring clips 46 which are disposed in grooves 45 and attached to the standards 43 by screws 47, the lower ends 48 of the spring clips 46 being adapted for engagement with the latch pins 32 in the base 11 to latch the carriage 14. The left side of tubular section 41, as seen in Fig. 3, is provided with a pair of clamping standards 49 and 51, each of which is provided with a slot 52 therein, the slots 52 being traversed by screws 53 which are adapted to vary the width thereof and hence the diameter of the bore 42 and clamping force applied to the barrel 19 of the telescope 16. The forward clamping standard 49 terminates in a cylindrical segment 54 which is adapted for reception by the counterbore 38 at the forward end of the tubular section 34 of the base member 11, the standard 49 further being provided with a concentric counterbore 56 adjacent the rearward end of the cylindrical segment 54 which is adapted to receive the tubular section 34 therein as best shown in Figure 1. The rearward clamping standard 51 similarly terminates in a cylindrical segment 57 which is adapted for reception by the counterbore 39 at the rearward end of the tubular section 36 and is provided with a similar counterbore 58 at the forward end of the cylindrical segment 57 for the reception of the tubular section 36 therein.

The cylindrical segment 54 of the forward clamping standard 49, the cylindrical segment 57 of the rearward clamping standard 51, and the tubular sections 34 and 36 of the base member 11 cooperate to define the basic components of the housing of the bearing assembly 17 and all are in axial alignment. The various auxiliary components of the bearing assembly 17 to be described hereinafter are also in axial alignment with the aforesaid basic components and with each other. Furthermore, all of the various bores and counterbores to be described are all concentric and coaxial and therefore all references to alignment and concentricity will be omitted from the subsequent description of the bearing assembly 17 to simplify the disclosure thereof.

The cylindrical segment 54 of the forward clamping standard 49 is provided with a bore 61 and concentric opening 62 which cooperate to define a shoulder 63, the opening 62 preferably being square. Disposed within the bore 61 and counterbore 62 is a complementary bearing 64 having a shoulder 66 which is complementary to and abuts the shoulder 63 to provide a rigid thrust support. The bearing 64 is provided with a cylindrical bore 67 which communicates with a conical counterbore 68, the latter defining a bearing surface. Journalled in the conical bearing 68 is the complementary conical end 69 of a tubular plunger 71 which is axially slidable in a bore 72 in the tubular section 34. The tubular plunger 71 is provided with a slot 73 which communicates with the interior 74 thereof, the slot 73 serving to permit axial displacement and to prevent rotation thereof by virtue of the keying action of a screw 76 which is threaded into the base 11 and extends into the slot 73. One end of a shaft 77 is threaded into the interior 74 of the plunger 71 and is rotatable relative thereto by means of a knurled collar 78 which is secured to the shaft 77, the collar 78 being disposed in the previously mentioned arcuate groove 37 which divides the tu-

SEARCH ROOM

2,571,935

5

extends into a conical bore 81 and cylindrical bore 82 in a bearing 83, the latter being disposed in a concentric opening 84 in the tubular section 36. The bearing 83 is disposed in the counterbore 84 in contact with shoulder 86 to provide a rigid support for thrust loads which are required to displace the plunger 71 axially, the shoulder 86 being defined by the cooperation of the opening 84 and a bore 87 in the tubular section 36. The bore 87 terminates in additional concentric openings 88 and 89 which cooperate to define a shoulder 91, the openings 88 and 89 having a complementary bearing 92 therein which is provided with a shoulder 93 thereon to engage the shoulder 91 and provide a rigid thrust support. The bearing 92 is provided with a bore 94 which communicates with the bore 87 and a conical counterbore 96 which acts as a bearing surface for a complementary conical journal 97. The latter forms part of a shaft 93 having a shoulder 99 thereon which is adapted to abut a shoulder 101 which is defined by an opening 102 and bore 103 in the cylindrical segment 57 of the rearward clamping standard 51. Rotation of the knurled collar 78 is preferably restrained by means of a spring clip 104 which is disposed in a groove 105 in the flange 23 of the base 11 and secured thereto by a screw 106. The upper end 107 of the spring clip 104 is adapted for engagement with the serrations of the collar 78 to resist rotation thereof.

The carriage 14 may be rotated relative to the base 11 about the axis of rotation of the bearing assembly 17 to permit employment of either the telescopic sight 16, or the iron sight 18. Since the base 11 is rigidly attached to the rifle 13 and the carriage 14 is rigidly connected to the telescope 16, it will be apparent that the prescribed relationship between the bore of the rifle 13 and the line of sight of the telescope 16 will obtain as long as the axis of rotation of the carriage 14 coincides with the axis of the tubular member 33 of the base 11. The conical bearings 68—69 and 96—97 act as a centering means to insure the attainment and maintenance of the desired coaxiality. Rotation of the knurled collar 78 effects axial displacement of the plunger 71 to increase or decrease the thrust loads sustained by the various conical bearings and it will be apparent that as the conical journals 69 and 97 engage the complementary bearing surfaces 68 and 96, respectively, more intimately, the axis of the former becomes coincident with the axis of the latter. When the carriage 14 is in normal operating position as illustrated, the engagement of the spring clips 46 with the latch pins 32 serves to retain the carriage 14 in that position. The knurled collar 78 may be rotated to increase the bearing thrust loads to a sufficiently high value whereby various intermediate positions of the carriage 14 may be maintained if use of the iron sight 18 is desired, the position of the knurled collar 78 being maintained by the engagement of the spring clip 104 therewith.

The carriage 14 may be removed readily by rotating the knurled collar 78 until sufficient axial displacement of the plunger 71 occurs to permit complete disengagement of the conical journal 69 from the conical socket defined by the bearing surface 68. The carriage 14 may be installed by reversing this procedure and the proper alignment of the line of sight of the telescope 16 may be obtained by tightening the collar 78

6

and return the telescope 16 to its original position. It will be apparent, therefore, that the carriage 14 may be removed and installed repeatedly without impairing the accuracy of alignment of the telescope 16, since the action of the various conical bearings insures exact duplication of the prescribed alignment. Furthermore, as the various components of the bearing assembly 17 becomes worn after prolonged use, the wear is automatically compensated by increasing the axial displacement of the plunger 71. Since the axis of the bearing assembly 17 is preferably parallel to the axis of the bore of the rifle 13, the recoil of the latter merely tends to seat the various conical bearings more securely and cannot affect the alignment of the telescope 16.

The inherent rigidity of the bridge-type construction of the single-piece base 11 and carriage 14 further insures constant alignment of the telescope 16 with the bore of the rifle 13. This feature provides a positive and reliable means of attaching the telescopic sight mount to the rifle 13 and provides a dependable support for the telescope 16. The installation of the base 11 is appreciably simplified, since it may be installed as an integral unit without the necessity of aligning various components thereof, a disadvantage inherent in many conventional mounts.

The base 11 may be adapted for application to any firearm without modifying the bearing assembly 17. This feature permits the use of a single carriage 14 and telescopes 16 with a large number of firearms by the simple expedient of transferring the carriage 14 from one to another, a base 11 being provided on each for the reaction of the single carriage 14. The mechanism previously described makes removal and installation of the carriage 14 a matter requiring but a few moments.

Although we have described an exemplary embodiment of our invention, we do not intend to be limited to the specific disclosures contained herein since those proficient in the art will recognize various changes, substitutions, and modifications of our underlying inventive concept; we hereby reserve the right to all such changes, substitutions, and modifications as properly come within the scope of our appended claims.

We claim as our invention:

1. In a device for mounting a telescopic sight on a gun, the combination of: a one-piece base adapted to be rigidly attached to the gun; a one-piece carriage adapted to receive and rigidly retain the telescopic sight; and centering means carried by said base and said carriage and providing an axis of rotation for said carriage for pivotally connecting said carriage to said base, said centering means comprising a pair of conical journals and a pair of conical bearings which are adapted to receive said journals, respectively, said bearings and said journals being spaced apart relative to said base and said carriage along said axis of rotation, said bearings facing each other and said centering means including means connecting said journals for increasing the spacing therebetween to seat said journals in said bearings, respectively.

2. In a device for mounting a telescopic sight on a gun, the combination of: a one-piece base member adapted to be rigidly attached to the gun and a one-piece carriage member adapted to receive and rigidly retain the telescopic sight, one of said members being provided with a pair

2,571,935

7

a pair of axially spaced, aligned holes therein which are adapted to register with said openings, respectively; and centering means carried by said base member and said carriage member and disposed in said openings and said holes for pivotally connecting said carriage member to said base member; said centering means including a pair of axially spaced conical bearings which face each other and including a pair of axially spaced conical journals adapted to seat in said bearings, respectively, and said centering means including means connecting said journals for increasing the spacing therebetween to seat said journals in said bearings, respectively.

3. In a device of the character described, the combination of: first and second members; a guideway carried by said first member and providing an axis; a first conical bearing carried by said first member on said axis; a second conical bearing carried by said second member on said axis, said first and second conical bearings facing each other; a first conical journal carried by said first member on said axis and adapted to engage said first conical bearing; a second conical journal carried by said first member in said guideway and movable in said guideway into engagement with said second conical bearing; and means connecting said first and second conical journals for moving said second conical journal in said guideway into engagement with said second conical bearing.

4. In a device of the character described, the combination of: first and second members; a guideway carried by said first member and providing an axis; a first conical bearing carried by said first member on said axis; a second conical bearing carried by said second member on said axis, said first and second conical bearings facing each other; a first conical journal carried by said first member on said axis and adapted to engage said first conical bearing; a second conical journal carried by said first member in said guideway and movable in said guideway into engagement with said second conical bearing; and means comprising an element rigidly connected to said first conical journal and threadedly connected to said second conical journal for moving said second conical journal in said guideway into engagement with said second conical bearing.

5. In a device of the character described, the combination of: first and second members; a guideway carried by said first member and providing an axis; a first conical bearing carried by said first member on said axis; a second conical bearing carried by said second member on said axis, said first and second conical bearings facing

8

each other; a first conical journal carried by said first member on said axis and adapted to engage said first conical bearing; a second conical journal carried by said first member in said guideway and movable in said guideway into engagement with said second conical bearing; and means comprising a screw rigidly connected to said first conical journal and threaded into said second conical journal for moving said second conical journal in said guideway into engagement with said second conical bearing.

6. In a device of the character described, the combination of: first and second members; a guideway carried by said first member and providing an axis; a first conical bearing carried by said first member on said axis; a second conical bearing carried by said second member on said axis, said first and second conical bearings facing each other; a first conical journal carried by said first member on said axis and adapted to engage said first conical bearing; a second conical journal carried by said first member in said guideway and movable in said guideway into engagement with said second conical bearing; means connecting said first and second conical journals for moving said second conical journal in said guideway into engagement with said second conical bearing; a third conical bearing carried by one of said members on said axis; and a third conical journal carried by the other of said members on said axis and adapted to engage said third conical bearing.

FRANK A. PACHMAYR.
ROGER HOWARD STOKES.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
317,460	Joyner	May 5, 1885
440,574	M. Merritt	Nov. 11, 1890
786,509	G. Merritt	Apr. 4, 1905
1,083,288	Lowe	Jan. 6, 1914
2,208,913	Unertl	July 23, 1940
2,369,148	Langhorst	Feb. 13, 1945
2,385,176	White	Sept. 18, 1945
2,396,404	Williams	Mar. 12, 1946
2,451,266	Whittemore	Oct. 12, 1948

FOREIGN PATENTS

Number	Country	Date
142,545	Germany	1903
204,399	Great Britain	1923
468,237	Great Britain	1927